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AMERICAN

JOURNAL OF OBSTETRICS

AND

DISEASES OF WOMEN AND CHILDREN.

EDITED BY

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ATTENDING PHYSICIAN TO THE NEW YORK STATE WOMAN'S HOSPITAL, OUT-DOOR DEPARTMENT; TO THE NEW YORK FREE DISPENSARY FOR SICK CHILDREN; LATE CLINICAL LECTURER ON DISEASES OF CHILDREN IN THE MEDICAL DEPARTMENT OF THE UNIVERSITY OF NEW YORK; MEMBER OF THE NEW YORK OBSTETRICAL SOCIETY; OF THE NEW YORK COUNTY MEDICAL SOCIETY; CORRESPONDING MEMBER OF THE CALIFORNIA STATE MEDICAL SOCIETY; OF THE GYNÆCOLOGICAL SOCIETY OF BOSTON, ETC.

ASSOCIATE EDITOR,

PAUL F. MUNDE, M.D.

VOLUME VI.

MAY, AUGUST, NOVEMBER, 1873—FEBRUARY, 1874.

New York:

WILLIAM WOOD & CO., PUBLISHERS,

27 GREAT JONES STREET.

LONDON: JOHN CHURCHILL'S SONS, New Burlington St.

HARVARD UNIVERSITY
SCHOOL OF MEDICINE AND PUBLIC HEALTH
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THE AMERICAN

JOURNAL OF OBSTETRICS

AND

DISEASES OF WOMEN AND CHILDREN.

VOL. VI.] MAY, 1873. [No. 1.

ORIGINAL COMMUNICATIONS.

THE CRANIOCLAST AS IMPROVED AND USED BY THE VIENNA SCHOOL.

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(Presented before the New-York Obstetrical Society, March, 1873.)

Instruments for the purpose of opening the fœtal cranium, and others for removing various portions of the skull, in order to facilitate the passage of the presenting head through a deformed pelvis, have been in use, such as they were, from the time of Hippocrates. The first attempt to devise an instrument with at least a claim to practical and scientific value was made in France, by Baudelocque the younger in 1829, and thus the first real foundation laid to the operation of craniotomy and the subsequent extraction of the mutilated fœtus. This contrivance was very bulky and clumsy, however, weigh-

ing eight pounds, thus in itself often preventing its efficient employment; and consequently, in the course of years the ingenuity of numerous obstetricians and instrument-makers was busy inventing new and more elegant and practical appliances, in which latter particular a good number utterly failed in their object. Among the newer cephalotribes, (κεφαλη, head, and τριβω, I bruise,) as this instrument was called, those devised by Hueter, Braun, Breisky, Scanzoni, and Martin in Germany, and Dubois in France, deserve especial mention, and are still principally used in both countries, and by the profession at large.

Other instruments for extracting the perforated head were recommended by Smellie, Burton, Mesnard, Scheel, Davis, Ritgen, Saxtorph, Busch, and others, and are at present found only in the museums of lying-in hospitals, never having had the practical value which their celebrated inventors vindicated for them. The so-called *conquassator capitis* with which Assalini proposed to compress and extract the head is an utterly useless article, as are also the tire-têtes specially devised by Kiwisch for the extraction of the head after its perforation with his trephine. Such a variety of contrivances for the diminution, compression, and extraction of the fœtal head have been invented within the last forty years, and each one praised as superior to all its predecessors, most of them differing so slightly as hardly to warrant their claim to originality, that with few exceptions they have been utterly committed to oblivion, and an enumeration would only be tedious. There are, however, a few inventions of later years which, partly an account of their

originality, and partly for the future which may still be in store for them, deserve more particular mention.

A most decided failure was Ritgen's Labitome, (*Monatsschr. für Geburtskunde*, vi. p. 6,) the inner surfaces of the blades of which were armed with knives which were intended to cut into the skull on locking the blades. A similar but more elegant and costly contrivance, called "perforating cephalotribe," was designed by Cohen in Hamburg, in 1857; during its trial on the dead child, Scanzoni reports the breaking of one of the blades, and predicts no great success to the instrument—a prophecy fully destined to be verified.

In 1842, Van Huevel introduced a most complicated and costly instrument to the notice of the profession which he called *forceps-scie*, and with which he proposed sawing the child's head through, and then extracting it with the already introduced forceps. It consists of Levret's forceps with a long chain-saw running in a groove in the blades, which saw is to be introduced by means of a separate key after the forceps are in place. The whole apparatus is too complicated to allow of its description in a few words, and in my opinion, judging from the difficulty I had in making it work on the dead body, too complicated also to use in practice. However, practice must make perfect, for the forceps-scie is largely used in Belgium, where it originated, and I have heard a favorable opinion of it, drawn from experience, expressed by an eminent practitioner of this city.

Another ingenious and, to my mind, not invaluable instrument was described and recommended by Hubert, of Louvain, in the *Mémoires de l'acad. roy. de méd. de*

Belgique, in 1869, under the name of *sphénotrypteur* or *transforateur*. The instrument consists of a long, straight steel rod, with a point shaped like a pine-cone and grooved like a screw; this is to be passed through the calvaria and the brain to the basis cranii, first the foramen magnum and then the sella turcica sought for, and the point imbedded in the bone; then a thick blade, like that of a forceps, is introduced, into the handle of which the above-mentioned rod is brought to fit by placing the blade accordingly, and then the screw is driven through the sphenoid bone until it meets the point of the blade and enters into a little opening made there for the purpose. The firm and unyielding base of the skull, which so often forms the chief obstacle to the delivery of the child in deformed pelves, is thus effectually transfixed and shattered, and a firm hold obtained of the head for extraction. While I was assistant to Professor Scanzoni, in 1868, the son of the inventor brought the instrument to Würzburg to show to Scanzoni, and I made several trials with it on the dead body, always with perfect success, and to my great satisfaction. In order to make a good extracting and compressing instrument of it, Scanzoni had a second blade and a compressing-apparatus added, and the whole thing made lighter and more elegant, thus joining a cephalotribe to the transforating rod: "transforating cephalotribe." In an extreme case of deformed pelvis, where a rupture of the uterus had already been produced by the violent ineffectual efforts of the organ to expel its contents, I attempted to apply this instrument, but, owing to the position of the head on and before the symphysis pubis,

I could not get a large enough segment of the skull within reach to make sure of boring in the point; after some difficulty, I thought I had succeeded; the point disappeared, as I supposed, in the cranium; I applied the cephalotribe, locked, and proceeded to use traction, when the whole instrument began to slip, and was slowly withdrawn. As a subsequent examination showed, the point had simply lacerated the scalp, passed through the ear, and entered the child's shoulder; a curved perforating rod, if such a one could be devised in accordance with mechanical principles and the limited field of action, would have answered the purpose better; and doubtless this case, which, after perforation, cephalotripsis, the forceps, version, and decapitation had been successively employed, was finally terminated by the repeated perforation, and manual compression and extraction of the detached head, could easily have been concluded by the use of Braun's curved trephine and the cranioclast, if we had had them at hand.

A somewhat similar instrument was invented and used by Guyon, (*Gaz. des hôp.* 1867, No. 145,) who called his method "*céphalotripsie intercranienne.*" A tire-fond or gimlet is bored into the calvaria, a trephine passed over this, and the skull opened; the tire-fond is then introduced, and bored into the basis cranii, which is perforated by means of a smaller trephine. The French cephalotribe being then applied, the whole skull can be completely crushed and easily extracted through the smallest diameter. The *forcipe perforatore*, invented by the Fratelli Lollini in Bologna, consists of a strong forceps in which is placed a movable auger; with this the base

of the skull is to be perforated in various places, and the head is then to be crushed and extracted with the forceps.

In England, neither the cephalotribe nor any of the other just-mentioned instruments are used, but most craniotomies performed with the old-fashioned scissors and the extraction with sharp or blunt hooks; in later years, Braxton Hicks (*Obstet. Tr.* vi. p. 263) and Robert Barnes (*e. l* .p. 277, and *Obst. Op.* 2d ed. 1871, p. 299) largely use and advocate the *craniotomy-forceps*, a species of enlarged and improved bone-forceps, with which they remove all loose and projecting pieces of the skull after perforation, until the cranium is so reduced in size as to allow its being pulled through the pelvis. Barnes, besides, recommends in extreme cases the introduction of the chain of an écraseur, and the sawing off and removal of portions of the basis cranii, before an attempt is made to draw the skull through the pelvis—a safe proceeding for the mother, but, as he himself admits, a most difficult thing to perform.*

Of all the instruments thus far mentioned and described, the cephalotribe has in all countries, with the exception of England, maintained its superiority, and been universally acknowledged and used as the most convenient, efficient, and least dangerous instrument for the compression and extraction of the fœtal head after perforation, in cases of deformed pelvis. A brief de-

* It has only just come to my knowledge, by verbal communication, that Kidd, surgeon to the Comb Hospital in Dublin, uses and recommends a *straight* cephalotribe with ribbed blades, and that Barnes in London has, in a measure, followed his example.

scription of the one most commonly employed, Scanzoni's, may not be out of place. The whole instrument is 17½″ long, of which 9½″ belong to the blades and 8″ to the handles, reckoned from the middle of the lock. The blades are 11‴ broad and 3‴ thick, and possess a projecting ridge in the middle and at the borders. The pelvic curvature, that is, the elevation of the points over the horizontal plane, measures 2″ 10‴; the cephalic curvature 1″ 2‴. The lock is the one known as that of Naegele-Bruèninghausen. The points of the handles can be made to approach to within 2¼″ when the instrument is closed. The compressive apparatus consists of a clamp over both handles and a screw, and is very simple. With the compressive apparatus the instrument weighs just two pounds.* Martin's cephalotribe differs from all others now in use in the blades being fenestrated like those of the forceps—a peculiarity which undoubtedly tends to prevent its slipping, and makes it what its inventor justly considers an advantage, a much lighter and more elegant instrument than any of its rivals.

The manner of using the cephalotribe, its indications and contraindications, the dangers accompanying and to be avoided by its application, and the various precautions to be taken in its employment, are sufficiently well known to all who have had occasion to use it, and their description would lead me too far out of the way in the present article. The advantages, and particularly the disadvantages, attending the use of the instrument, however, are still subjects of discussion among different leading obstetricians of Europe, and it is my object, and necessary to

* Scanzoni, Lehrbuch der Geburtshilfe, iii. Band, p. 246, 1867.

the full understanding of the value of the modified cranioclast, to lay stress on these disadvantages and show the contrast between the two instruments.

Every practitioner who has had some experience with the cephalotribe will have met with a number of cases in which the instrument has not by any means satisfied his expectation. The head has been perforated either with the scissors or the trephine, we apply the cephalotribe, compress, and proceed to use traction, when we gradually feel the instrument slipping away, and are compelled to remove and apply it again anew, with very likely the same result, until finally by chance a firm hold is caught or the neck is grasped between the points of the blades and the extraction succeeds, or we have to resort to some other instrument or means of delivery. When this mishap has occurred to an operator in a number of cases, he begins to lose faith in the instrument and look about for a more reliable substitute. Scanzoni himself (loc. cit. iii. p. 243) confesses to having lost a good deal of his enthusiasm for the cephalotribe, after this slipping away and the frequent inability to get a firm hold of the soft compressed skull had repeatedly happened to him, but considers that a practical construction of the instrument and various precautions in its application will prevent this occurrence. My own experience with Scanzoni's cephalotribe goes to refute this last opinion expressed by my late revered chef; for, out of four cases of cephalotrypsis, in three the instrument, although applied *lege artis*, failed to get a firm hold on the shattered head and slipped away, and was reapplied in one case eight times, in another twice, and the

labor was finally terminated by the manual compression and extraction of the head, and subsequently the rest of the fœtus; in the third case, the forceps effectually supplied the place of the cephalotribe; and in the fourth, the one mentioned above under the description of Hubert's sphenotryptor, the instrument slipped because the head was situated too far on the pubis and a sufficient segment of it could not be brought between the blades to get a firm hold upon. This difficulty was owing to the insufficient pelvic curvature, a peculiarity in which the French cephalotribe is superior to the German.

If we now consider the instrument to slip in the hands of an inexperienced operator, who does not anticipate this occurrence, it is easy to imagine how much injury the rapid involuntary removal of the cephalotribe may do to the cervix, vagina, and perinæum of the parturient female, as, indeed, post-mortem examinations of such cases frequently show, even when the operator was expert in the use of the cephalotribe. The instrument, although nothing in comparison with the original one of Baudelocque, is still pretty bulky, possesses various sharp ridges and projections, and has to be introduced and manipulated with great care, to prevent injuring the soft parts of the mother.

This same size and bulk will often prevent or restrain the free use of the instrument in cases of extreme pelvic deformity, and necessitates its application in the transverse diameter, the result of which is, that on compression the head is enlarged in the antero-posterior or conjugate diameter of the pelvis; as this is the diameter most generally shortened, the head will thus naturally be

pressed against the already bruised soft coverings of the anterior and posterior pelvic walls, their tissues will be more or less injured, and the extraction of the head retarded. Notwithstanding the indisputable advantages of the cephalotribe, especially over the complicated and expensive contrivances mentioned above, its simple construction and moderate price, the ease and rapidity with which it is applied, and its frequent undoubted serviceability, the disadvantages just discussed—its more than frequent inability to seize firm hold of the mutilated head, its size and bulk, the temporary enlargement of the antero-posterior diameter of the fœtal head, and the ease with which the maternal parts can be injured under unskilful management—all of which points will be readily conceded by practitioners experienced in its use—these disadvantages, I repeat, warrant our looking for a more reliable, as well as equally effective, simple and cheap instrument, and this I consider to be found in the contrivance which forms the subject of this paper. After this somewhat lengthy introduction, which, however, appeared necessary to me in order to show the want of a new and improved instrument, and to contrast its qualities with those of its predecessors in the same direction, I shall now proceed to describe the cranioclast and its employment, from its original invention to the improved form and manner in which it is at present used in Vienna.

In 1860, Sir James Simpson described and recommended a new bone-forceps, under the name of cranioclast, (cranio, and κλαω, I break,) for the removal of the calvaria after perforation, one blade being passed into

the cranium, and the other applied outside, breaking the bones and removing them piecemeal. This instrument was intended only in exceptional cases as an extractor of the fœtus, and as will be seen from the accompanying cut,

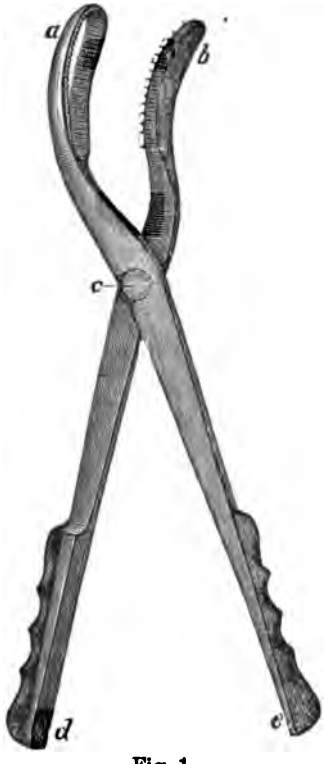


Fig. 1.

was not at all adapted to that purpose, being devoid of lateral hooks for the fingers or any other contrivance to facilitate traction. The length of the instrument* is 14″ 16‴; from the end of the handles to the lock 9″ 3‴; from the lock to the point of the blades 5″ 3‴. The

* The cuts and the descriptions of the original and improved cranioclasts are taken from the "Beobachtungen über Kraniotomie," by Dr. Karl Rokitansky, Jr. Wiener Med. Presse, 1871.

greatest breadth of the fenestrated blade is 1″ 1‴, that of the solid blade 9‴; the fenestrated portion is 3″ 1‴, the corresponding portion of the solid blade 2″ 7‴ long. The handles are covered with notched wood, and touch each other when the instrument is closed. The convex surface of the solid blade is covered with fine sharp points, and its borders with notches which fit into corresponding elevations and depressions in the rim of the fenestrum of the other blade, thus adding greatly to the tenacity and usefulness of the instrument.

It was of this cranioclast, considering it as an instrument for extraction, that the unfavorable opinion of Scanzoni and others was formed. The former (loc. cit., p. 236) says that, as a rule, the cranioclast, which has been so warmly recommended by Simpson, will be found useful only where there is no very considerable impediment to the passage of the head on the part of the pelvis; that its uselessness has been demonstrated by Haake and Hecker at the bedside, and that all the reproaches made to the various bone and excerebration forceps are alike applicable to it. In this opinion Scanzoni was correct; the original cranioclast is nothing more than an improved obstetrical bone-forceps, with somewhat longer handles than usual.

Relying on the renowned name of Simpson, the cranioclast was subjected to trial by numerous obstetricians, and in various cliniques throughout the world, but nowhere more extensively and thoroughly than at Vienna, where the enormous obstetrical material offered for observation and experiment—the largest in the world—presented admirable opportunities for testing the new in-

strument. After a series of trials, which resulted in a confirmation of Scanzoni's views, Professor Carl Braun, having noticed the unusually firm hold taken by the instrument of the bones of the skull, thought that this



Fig. 2. Improved Cranioclast.

quality might be made useful, and by lengthening and otherwise modifying the cranioclast, an instrument might be built up which, by virtue of its firm grasp, might sup-

plant the unreliable cephalotribe as an extractor of the perforated fœtal head. Thus gradually the cranioclast was brought to its present state—not of perfection certainly, for in the present age of invention we cannot foresee what new improvement it may still undergo, but of undoubted utility. The instrument, as now almost exclusively used in Vienna, is of quite recent date, and differs very markedly, especially in the manner of its employment, from its ancestor; in fact, it no longer deserves the name of cranio-*clast*, but should be called more properly cranio-(ex)*tractor*, (Fig. 2.) It is longer and stronger in all its parts than the original cranioclast, the whole length being 17″ 8‴; the distance from the ends of the handles to the lock measures 10″ 7‴; from the lock to the tips of the blade 7″ 1‴; the length of the fenestrated blade is 3″ 8‴, and that of the solid one 3″ 3‴. By comparing these measures with those of the old instrument, it will be seen that the former are considerably larger, the blades especially being nearly 2½″ longer. The breadth of the blades is the same in both instruments. Attached to the lower end of the handles is an apparatus for compression, similar to that used by Hueter for his cephalotribe. On closing the blades, the handles approach each other only to within 9‴, which insures a more energetic action of the compressory apparatus and a firmer grasp of the blades on the portion of the skull between them, and prevents the slipping of the instrument. For the purpose of securing a firm hold for traction, two lateral hooks, similar to those of a forceps, are affixed to the upper end of the handles.

These modifications were suggested by the following

facts: It was found by experiment that the original instrument, especially the blades—that part of it which is introduced into the genital organs—was much too short, the lock lying inside of the vagina, out of sight and convenient reach for the closure of the blades; further, that mere manual compression did not suffice to secure a firm grasp of the head; that in a severe case of deformity, or with an exaggerated size of the fœtal head, the extraction of the latter without more convenient and practical appliances for traction, was as good as impossible; and lastly, that the whole instrument was too slender and weak, and liable to feather.

The cephalotribe may be used on the intact head, although that is not the approved way; but the application of the cranioclast must be preceded by the opening of the fœtal head. This may be done with the old scissors. In Vienna it is, and has always been done for the last twenty years, with the curved trephine invented by Professor Carl Braun, which possesses the advantage over the scissors of making a clean, round opening with smooth edges, devoid of ragged spiculæ of bone; and by its curvature, surpasses Kiwisch's straight trephine, which, not being built in conformance with the axis of the pelvic cavity, is occasionally prevented from touching a sufficient segment of the head by a long and resisting perinæum. After cephalotrypsis (cephale, and τρυπησις, perforation) has been performed, and the brain washed out, the solid blade of the cranioclast is introduced on the guiding fingers of the left hand into the cavity of the cranium, and held in position by an assistant. The other blade is then passed in on the side

of the pelvis which is most convenient, or where there is the most room, and gently brought around over the forehead or face of the child. This will almost always be possible, except where the pelvis is very narrow, or the head firmly impacted, in which case the portion of the skull offering the firmest grasp and the most resistance, is chosen as the spot for applying the blades. The solid blade is then shifted within the cranium, so as to lie opposite the external branch, both blades are carefully pushed in as far as they will go, and locked, an act which will be much facilitated by depressing the blades toward the perinæum until their closure has been effected. The compressive apparatus is then applied, and the handles are brought into as close apposition as possible. After an examination has convinced the operator that the instrument is well applied and the head firmly grasped, slow and steady traction is made, stopping at intervals to note the progress of the head, the condition of the cranial bones, and the tenacity of the instrument. The empty, flaccid skull, as it is drawn through the pelvis, will be found to become elongated, and will adapt itself to the shape of the pelvic canal, thus, as a rule, rendering its compression by an instrument, such as the cephalotribe, unnecessary. After more or less traction, according to the degree of deformity, and under constant supervision of the progress of the case with the fingers of the left hand in the vagina, the head, usually elongated to twice its length, will be extracted, and the cranioclast may then be removed and the rest of the body extracted manually, or, if the child be small, delivered by simple continued traction without detaching the instrument.

It might be supposed that the edges of the trephine-wound, not being protected by the broad blades of a cephalotribe, would injure the vagina, but it is here we find the advantage of the trephine: the smooth edges of the circular opening approximate themselves to the branch of the cranioclast, the flaccid scalp covers them, and no case is known in which they were found to protrude, or have wounded the vagina. If the craniotomy has been performed with the scissors, it will generally be found necessary to remove projecting portions of the skull with the bone-forceps, and assure one's self that the scalp covers the edge perfectly, before applying the cranioclast.

One might believe that the cranioclast would be liable to slip, or that the bones of the calvaria would tear out when strong traction is made; and this is an objection made to the instrument by Scanzoni and others, who refer to the original cranioclast, and not to the one now used in Vienna. Scanzoni, as I know from personal observation, never operated with the new instrument or even saw an operation performed with it, at least up to 1872, which is as late as my information reaches; consequently, his objection is merely a theoretical one, and not valid. If applied *lege artis*, as it usually can be, over the face, forehead, eye, or ear, it will never slip or tear out; but even if the operator is obliged, from want of space or unfavorable position of the head, to seize on a parietal bone instead, he will hardly ever find himself compelled to reapply the instrument, or resort to another means of delivery. Rokitansky, Jr., (loc. cit.,) mentions fifty-two instances in which the cranioclast was applied in

Professor Braun's clinique, and six in his own practice, in none of which a slipping of the instrument or a tearing out of the bones occurred. The conjugate diameter of the pelvis in these cases varied from 2″ to 3″ 6‴, the weight of the children from 3 to 6 pounds Austrian, (which is a little larger than American weight.) Cranioclasis has been performed a number of times (how many I am not able to state) in Professor Spaeth's clinique, (the number of confinements in both cliniques is about 10,000 a-year!) and the assistants assured me of their perfect satisfaction with its working. I myself saw the instrument applied several times in both cliniques with invariably good results, and can testify from my own experiments with it on the dead body, with an artificially deformed pelvis, to the vice-like grip which it takes of the fœtal head. I remember one instance, where a woman was brought into the clinique after several ineffectual attempts had been made outside to deliver her with the forceps. It was found to be a case of hydrocephalus, the child was in the incipient stage of putrefaction, and the bones of the head were extremely loose and flaccid from this cause and the hydrocephalus. The head was tapped, the cranioclast applied to the parietal bone as quickly as possible—the woman being *in extremis*—and the extraction completed in a few minutes. Surely in this case the cranioclast might have been excused for tearing out, but, grasping the whole side of the skull and scalp, it drew the head to over double its length, and retained its hold.

The cranioclast can be employed, when the head is the last portion to be extracted, with the same facility as when it is the presenting part. The curved trephine is

applied to the most convenient spot—the mastoid process or basis cranii—the skull is opened, the cranioclast introduced, and the result will be perfectly satisfactory. In five cases reported by Rokitansky, (loc. cit.,) the extraction succeeded without difficulty, the children weighed from 5 to 6¼ pounds, the conjugate diameter varied from 2 to 3 inches, and the women all recovered without any puerperal trouble. The length and slenderness of the cranioclast and its manner of operation render it equally efficacious, when the head is above the superior strait, in cases where podalic version usually has to be substituted for the cephalotribe.

From this same report by Rokitansky I draw the following items on the comparative results of craniotomy cases terminated with the cephalotribe and with the cranioclast:

Out of 52,394 cases of confinement in Professor Carl Braun's clinique, during 10 years and 3 months, 103 were terminated by craniotomy; 86 operations were performed on the presenting, 9 on the succeeding head; in 8 cases, trepanation alone was necessary, the pains then expelling the child.

The cephalotribe was applied in 43 cases, with the following results: The instrument slipped off in 8 cases; 6 times it became necessary to crush the head in different directions; in 8 cases ruptures of the cervix (2 penetrating and 6 not penetrating—once the anterior lip of the os uteri was torn off) were caused, and in 3 cases vesico-vaginal fistulæ ensued. Twice it was found necessary to turn the child, after the impossibility of extracting the perforated and empty head with the cephalotribe

became apparent. Of the mothers, 21 died—16 of puerperal disease, 2 of anæmia, 2 of rupture of the uterus, and 1 of Bright's disease. The autopsies showed: Ruptures of the cervix, 8 times; tearing off of the anterior lip of the os uteri, once; gangrenous spots of the uterus corresponding to the promontory, twice; in one case several perforations through the cervix into the neighboring tissues, besides two openings into the cavum peritonæi; gangrene of the vagina, once; suppuration of the cervix, 3 times, of the symphysis, once; gangrenous laceration of the cervical mucous membrane, once, and superficial erosions of the vagina, once. Six women became affected with endometritis and were dismissed well; the others were not taken ill in puerperio. The conjugate diameters varied from 2″ to 4″; the children weighed between 4 and 7¼ pounds. Of these 43 cases, 26 were operated on with a cephalotribe with a small pelvic, but large cephalic curvature, (German,) and 17 with a cephalotribe with a large pelvic, but very small cephalic curvature. (French, Dubois.)

In 52 cases, the extraction of the child was performed with the cranioclast, the head being 47 times the preceding and 5 times the succeeding part; and in no case did any slipping off of the instrument occur, or its reapplication become necessary. The operation was performed twice for enormous hydrocephalus; 8 times for tetanus uteri; once in prolapsus uteri; 17 times in consequence of fever, which in 8 cases resulted from endometritis; 5 times for deficient labor-pains; 5 times in rupture of the uterus; 5 times in face-presentations; once in a frontal presentation; and once in a case of enchondroma of the

sacrum, which reduced the length of the antero-posterior diameter to 2″ 9‴. In four cases, podalic version was performed on account of the pelvic deformity, and in two of these cases the perforated head extracted without having washed out the brain through the opening. The conjugate diameter varied from 2″ to the normal length, 5 times it was normal, 5 times 3″ 6‴, 5 times 3″ 3‴, 17 times 3″, 8 times 2″ 9‴, 6 times 2″ 6‴, 4 times 2″ 3‴, and twice 2″. Three of the pelves were, besides, generally narrow, (funnel-shaped.) The weight of the children varied from 2 pounds 14 ounces to 6 pounds 10 ounces; their length from 16½″ to 21¼″. In 8 cases, fruitless endeavors to terminate the labor had been made outside of the clinique. Of the mothers, 19 died —15 of puerperal disease, 1 of anæmia, 2 of ruptura uteri, and 1 of chronic Bright's disease.*

The autopsies showed: Once suppuration of the symphysis, and once, corresponding to the promontory, a necrotic spot of the size of a cent, which originated in the pressure of the fœtal head, and in which a minute opening into the peritoneal cavity, passable only for a slender probe, was discovered.

Four puerperæ fell ill with endometritis, and, as well as three of the seven mentioned above as taken sick before delivery, were discharged well; twenty-one were discharged without having been ill at all.

In England, (Tyler Smith and F. W. Mackenzie,

* It ought to be mentioned that nine of the forty puerperæ recorded as having died after craniotomy, owed their deaths to other than puerperal causes, (that is, to causes independent of parturition or the instrument employed for delivery.)

Transact. of the Obstet. Soc., 1860,) the mortality from craniotomy is one out of every five operated on; in Vienna, the mortality was 1.99 out of every five operations—a result which would speak in favor of the English mode of operating.

When we consider, however, that in England craniotomy is performed much more frequently than in Germany, and consequently in a great many comparatively light cases, whereas the operations undertaken in Vienna were usually called for by the severest forms of dystocia, the results published in the above report do not appear by any means so unfavorable.

Comparing the above-mentioned records of the cephalotribe and the cranioclast, the indications for which the instruments were used, their reliability, the degree of deformity of the various pelves, the size of the children, the injuries inflicted on the maternal organs, and the mortality following the operations,* we find the returns to be most decidedly in favor of the cranioclast. It performed all that was done by the cephalotribe, and terminated in every way equally severe cases with much less trouble and exertion to the operator and less danger to the mother. Rokitansky (loc. cit. p. 28) says, "All the unpleasant occurrences accompanying the use of the cephalotribe were found wanting during the operation with the cranioclast."

The supporters of the cephalotribe may say, that by building a suitable instrument all the defects mentioned

* If craniotomy were not looked upon as a last resort and deferred until the last moment, the mortality of the operation, whether performed with the cephalotribe or the cranioclast, would doubtless be much diminished.

above may be remedied, and such a contrivance as the cranioclast entirely dispensed with. To produce a cephalotribe that will not slip and that will enable us to firmly grasp a head even when it is above the superior strait of the pelvis and resting on the symphysis pubis, the instrument should be made with a very slight cephalic curvature, and the extreme points bent almost at right angles, like hooks, to catch a tight hold of the head, and then there must be a strong pelvic curvature to enable us to follow the axis of the pelvic canal; it must, in fact, be the French cephalotribe, with the points bent a little more inward. A cephalotribe formed on this plan will be a useful and effective instrument; but it will also slip at times, as the Vienna report shows, and the strong pelvic curvature causes the points to press too heavily against, and consequently endangers, the anterior wall of the uterus.

It would be unfair utterly to discard the cephalotribe for the cranioclast, and to disclaim all the good it has done and the advantages it possesses; still, having seen how difficult it often is to introduce and lock the large, broad blades, how frequently a reapplication becomes necessary, and finally another mode of delivery has to be resorted to, and how easy it is to produce lesions of the maternal organs, and having, on the other hand, witnessed the ease, rapidity, elegance, and safety of the operation with the cranioclast, I cannot but give my testimony for and preference to the latter instrument.

The results obtained in Vienna, with the obstetrical material of which city no other school can compete, naturally completely outweigh, in my mind, any theo-

retical or even practical objections offered without adequate personal experience.

Should cases occur in which it does not appear probable that the fœtal head will sufficiently adapt itself to the form of the pelvis to allow of its being drawn through with the cranioclast, and in which, consequently, the excessive deformity seems to call for an active compression of the cranium, the cephalotribe built after the French pattern, or according to the principles given above, will be found the most useful and reliable instrument.

As it is not my object to write an article on craniotomy, the special indications and details of the operation have not been touched; nor is there any difference, except such as have already been spoken of, in the indications for using the two instruments. If any, it would consist in the existence of a wider scope for the use of the cranioclast, owing to its easier and safer application.

I do not think I can conclude better than by giving Rokitansky's résumé of the advantages of the cranioclast, (loc. cit. p. 29:)

1. Its application is possible in every diameter of the pelvis, and is never attended by the difficulties peculiar to the employment of the cephalotribe in some cases.

2. It needs a much smaller field of action than the cephalotribe, owing to its absolutely smaller size, which is diminished still more by the fact that the solid blade is introduced into the cavum cranii.

3. The action of locking is easy, because the lock always remains external to the vulva, and the blade lying in the cavity of the skull can be turned, pushed forward

or withdrawn, depressed or elevated, more or less, at will, whereby it is easy to bring one portion of the lock into the same plane and close to the other and effect the locking.

4. The cranioclast never slips, and consequently is a most excellent instrument for extraction.

5. It is equally reliable with the preceding as with the succeeding head, in which latter case it seizes a firm hold of the basis cranii.

6. Injuries to the genital organs do not occur.

7. It can be intrusted much sooner than the cephalotribe to the hands of a but moderately skilful operator.

Messrs. George Tiemann & Co., 67 Chatham street, have constructed several cranioclasts after the one in my possession, with the improvement that the steel parts of the instrument are nickel-plated to prevent their rusting. I should be glad if this article would lead gentlemen to whom appropriate cases occasionally occur (luckily this is not so much the case in this country as it is in Europe) to try the cranioclast after the manner just described and feel confident that they will not regret having done so.

Appendix.—Since the presentation of the above article before the New York Obstetrical Society, and after it had gone to press, the February No. of the JOURNAL OF OBSTETRICS, containing Dr. John S. Parry's paper on "Craniotomy and the Cesarean Section in Small Pelves," came to hand, in which paper I find a corroboration of

the opinion expressed by me on the cephalotribe. My article does not intend to compare the relative merits of craniotomy and the Cesarean section, but simply to call attention to the superiority of the improved cranioclast over the cephalotribe; consequently I do not propose to draw any comparison between the cranioclast and the Cesarean section, but merely desire to make the statement that, if the cranioclast were employed more generally, and the cephalotribe reserved only for those cases where it becomes absolutely necessary to crush the base of the skull, the mortality from craniotomy would be much diminished (for which assertion sufficient reasons have been given above). Let us only look upon craniotomy as an operation to be performed as soon as the narrowness of the pelvis and a moderate trial with the forceps have demonstrated its necessity, and the feasibility of podalic version and extraction has been discussed, and its performance perhaps ineffectually attempted, and let the operation be performed before the mother has become completely exhausted by the duration of the labor and the various attempts to effect her delivery, and I see no reason why a craniotomy, rationally determined upon, should have a worse termination than an extraction with the forceps or a version. There is not the slightest doubt that the enormous mortality of craniotomy hitherto is owing to the late period at which it has been undertaken, and the inefficient and bulky instruments used for its performance. Dr. Parry says, "The great virtue of the latter instrument (the cephalotribe) is that it enables us to get rid of the vault of the cranium quickly." This is true! the cephalotribe com-

presses the cranium, and we can then remove the loose bones with bone-forceps. But it does us very little good to remove the vault of the skull if we do not also shatter its base, the virtual *pièce de résistance;* and this but few cephalotribes can do effectually, and even if they succeed they will slip when traction is used.

If, as Braxton Hicks said, in 1867,* the cephalotribe "is not a tractor, and, therefore, should pains be absent we shall generally have to draw down the head by some other means," what are the means alluded to for drawing down the head? Surely not the crotchet, the old bone-forceps, or the original cranioclast, all of which either tear out or are impractical as extracting instruments? A feasible plan would seem to me the following: First, crush the skull as much as possible with the cephalotribe, provided of course the degree of pelvic deformity necessitates such a measure, which will not very often be the case, and then apply the improved cranioclast, putting one blade into the mouth and the other along the chin and neck, or wherever a firm hold can be obtained, and accomplish the extraction.

Dr. Parry seems still to refer to the original cranioclast in his article, and I cannot refrain from thinking that if he had employed the improved instrument, he would have terminated the operation much sooner, and without the tedious labor of removing the calvaria piecemeal. The longer blades of the improved cranioclast would have permitted a firmer grasp of the head (according to the account given there were still enough of the firm bones of the face left for the purpose), and

* Parry, loc. cit.

the compressing apparatus would have prevented any slipping or tearing out.

Dr. Parry's case is one in which the degree of deformity precluded all hope of delivering a *full-grown* unmutilated child in any other way than by Cesarean section, and I am safe in asserting that very few obstetricians would propose any other mode of delivery after the thirtieth week of utero-gestation in a pelvis with an antero-posterior diameter of one inch and a-half. Schroeder (Geburtshülfe, 1872, page 475) gives for Germany 5½ centimetres=2″, Paris measure, as the utmost boundary of craniotomy, but mentions that the English obstetricians deliver a child by their method through a flat pelvis with a conjugated diameter as low as 4 Cm.=1″ 6‴, and that Barnes hopes to succeed in reducing the minimum to 2¾ Cm.=1″. Of these latter statements Schroeder says that, "unless one have a very high opinion of one's own skill, and be in possession of the instruments necessary for the most extreme cases, it is better to prefer the Cesarean section as the easier and, under the circumstances also, less dangerous operation for the mother."

The case which forms the subject of Dr. Parry's paper presents some similarity to a very difficult labor which came under my care several years ago, and which forcibly demonstrates the power of nature in overcoming even extreme difficulties. A. Mehrwald, 29 years of age, a dwarf in height, came into the Lying-in Hospital in Wurzburg, in 1863, at full term. An examination of the pelvis showed the following dimensions: External conjugate diameter 5¾″, internal con-

jugate $2\frac{3}{4}''$; distance between the anterior superior spines of the ileum $7\frac{3}{4}''$, between the trochanters $10\frac{1}{4}''$; circumference of the pelvis $24\frac{1}{2}''$. Her height was 44″. The legs and arms were slightly bent, and she reported not to have been able to walk before her fifth year, to have "teethed through her legs," as she expressed herself. The deformity was therefore of rachitic origin, the pelvis generally contracted, and the antero-posterior diameter as usual the shortest. After due consideration of the points of the case (Profs. Breslau, of Zurich, and Hecker, of Munich, being accidentally present with Prof. Scanzoni), the apparent large size of the living child, and the slim chances of effecting an easy delivery by craniotomy, the Cesarean section was determined upon, and the necessary preparations made. While waiting for the pains to reach a sufficient intensity the gentlemen left the hospital, but were suddenly summoned by the house-physician on account of the rapid and unexpected descent of the child's head, and arrived just in time to find a dead child of over 5lb. German weight (about $\frac{1}{10}$ more than American), born spontaneously, without any injury to the mother. In 1866 she came again, at term, and was delivered in the same manner of a male asphyxiated child, which died in 18 hours. The left parietal bone was fractured; the bi-parietal diameter was 3″ 3‴, the bi-temporal 3″.

A year later, in 1867, she appeared again, and I had the first opportunity to examine her, having but shortly before been appointed junior assistant to the hospital. The female child was again born spontaneously, in an asphyxiated state, and died in three hours, after a

labor of 14½ hours. Diameters of child's head: Bi-parietal, 3″ 2‴; bi-temporal, 2″ 8‴; circumference of glabella and occiput 13″.

In 1869, she again entered the hospital, and was delivered after a labor of nine hours of an asphyxiated child, weighing 5 lb., which lived an hour and a half. The length of the child was 18¼″; the circumference of the head, 12¾″; the occipito-mental diameter, 5¾″; the bi-parietal, 3¾″ and the bi-frontal, 3¼″. The left frontal bone had a deep lateral indentation 2½″ long, without fracture. The mother left the hospital as usual without having been in the least ill.*

In the spring of 1870 she came again, at full term, and having become confident by her previous good luck, informed me that she expected to get along without a doctor, and expel the child in six hours at the latest. Having witnessed the extraordinary muscular vigor of the uterus, and the gradual adaptation of the diameters of the fœtal head to those of the contracted pelvis, during the two former labors, I had no doubt she would again make good her word, and therefore, after satisfying myself that the head presented, and that all circumstances were apparently favorable, I left her in charge of the midwife. Several hours later, I noticed that the head did not adapt itself as rapidly as in the former labors, and that it appeared larger and harder than usual; but I still confidently expected that the violent contraction of the uterus would overcome the disparity of size and space. Visiting her again,

* Dr. Parry likewise reports the delivery of his patient in 1869, at full term, but unfortunately gives no particulars as to the mode of delivery, nor does he state the weight and size of the child in either confinement.

some eight hours after her admission, I was informed by the midwife that the pains had been very violent up to within half an hour, but had then suddenly ceased almost completely, and that the patient appeared much exhausted by her ineffectual efforts to promote the labor by the voluntary contraction of the abdominal muscles. On examining the abdomen, I was immediately struck by the unusual distinctness with which the small parts of the child which were all collected on the left side could be seen and felt, whereas the hard fundus uteri was plainly discernible on the right side of the abdomen. There was, besides, a moderate hemorrhage from the vagina, the pulse was very small and rapid, the woman much prostrated, and a total absence of uterine contractions. Judging from all these signs, I felt positive that a rupture of the uterus had taken place, which diagnosis was confirmed by Prof. Scanzoni a few hours later. As the fœtal heart could no longer be heard, and the os was sufficiently dilated for the purpose, Scanzoni, anticipating a comparatively easy extraction after the former rapid deliveries, thought it preferable to perform craniotomy rather than subject the patient to the perils of Cesarean section.

The patient was consequently put under chloroform, and at 8 A.M., June 6, I commenced the operation in the presence of, and with the assistance of Prof. Scanzoni, before a clinique of some 120 students. The attempt to perforate and extract with a modified sphenotryptor, according to Hubert (described above on page 4), failed because the head was movable, and situated so far on and before the symphysis pubis as to present

but an exceedingly small portion to the point of the perforator and the blades of the cephalotribe, even when the handles of the instruments were pressed as much as possible against the perinæum. The straight trephine of Kiwisch was then applied with the same result. Scanzoni then suggested the use of the forceps, which by means of their pelvic curvature could seize a firm hold of the head, and with which the latter might be drawn down and fixed in a convenient position for the application of the trephine and the cephalotribe. Various ineffectual efforts having again been made with the forceps and cephalotribe, Scanzoni advised me to turn the child and endeavor to perforate the succeeding head. This I did, but owing to the contraction of the conjugate diameter and the size of the child's head, I found it impossible to reach the sides of the skull, and was obliged to attempt trepanation through the roof of the mouth, which but imperfectly succeeded. After traction by the neck, and when forceps and cephalotribe had again been employed without in the least engaging the head in the superior strait of the pelvis, we were compelled to desist from further manipulation by the condition of the patient, who had been under chloroform for about two hours, and who, exhausted as she already was before the operation, was now at the point of death.

The body of the child was removed, and the head receded, passing through the rupture into the abdominal cavity, whence I extracted it after the death of the mother, by perforating it with Blot's scissors, and drawing the crushed organ through the pelvis with my

hand. The child without its head, weighed 4½ lbs.; the mutilated head alone weighed over one lb. At the autopsy, the pelvic diameters given above were confirmed, and a fissure more than large enough for the passage of a man's fist was found at the junction of the cervix and corpus uteri on the left side, the spot where (according to Prof. Carl Braun*) all perforating ruptures of the uterus during labor take place. This rupture was undoubtedly produced by the violent contractions of the body and fundus of the uterus, by which the upper portion of the organ was literally torn from the cervix, which at every pain was firmly pressed against the bony rim of the superior pelvic straight by the presenting head. No other lesions of the maternal organs were found, notwithstanding the protracted and difficult manipulations described above.

How much easier would have been the delivery by laparotomy, which we would certainly have performed had not the previous easy deliveries made us inapprehensive of any serious difficulty.

Another severe case of dystocia came under my observation in February, 1868, and has already been described by Dr. O. von Franque (Ueber Stachelbecken, Scanzoni's Beiträge, 1869). Dr. Parry mentions it as case 53 in his list. A short sketch of the case is as follows: D. P., 20 years old, was admitted into the hospital with labor-pains, Feb. 21, 1868. Her extremities were considerably deformed by rachitis, and the pelvis was found generally contracted, the external conjugate diameter measuring 3″ 2‴ and the internal

* Private Notes from Lectures during the Summer of 1871.

conjugate 2″ 5‴. The left half of the pelvic cavity was also found smaller than the right. On the rupture of the membranes a prolapse of the cord took place, the pulsations of which ceased after various ineffectual attempts to return and keep it above the head. The child being dead, and there being no apparent probability of the spontaneous termination of the labor, perforation was performed and Scanzoni's cephalotribe applied. This instrument, after having slipped and been reapplied *eight* times in different diameters by different operators (as my notes distinctly have it and not *four* times, as Dr. von Franque states), was discarded,* and podalic version attempted. Owing to the contraction of the antero-posterior diameter it was found impossible to pass the arm up far enough to reach and grasp the child's feet or knees, and after five distinct attempts had been made in various positions of the mother, and by three different gentlemen, we were again compelled to resort to other means, and began seriously to think of the unfortunate *dernier ressort* of Cesarean section. Before coming to this extremity we concluded to try the various bone-forceps, and with these, Simpson's cranioclast, and the crotchet, we succeeded in removing a large part of the skull and, aided by traction on one of the arms which had been drawn down, in gradually pulling the basis cranii into the superior pelvic strait. It was now possible to seize and crush the head with the hand, and I finally had the satisfaction of performing the manual

*The labor was therefore not at all finished by the cephalotribe, not even after protracted proceedings, as Dr. Parry quotes from the Sydenham Soc. Reports.

extraction of the child some 10 hours after the perforation. The mutilated child weighed 5 lbs. 14 oz.; with the brain and the vault of the skull, fully 6½ lbs. The mother died on the fourth day of diphtheritic endometritis. No mechanical lesions of the genital organs were found at the autopsy.

Can any one wonder that I have lost a great part of my faith in the cephalotribe after such experiences; and do not the reports of Jones, of the Paris operations (quoted by Dr. Parry), which were performed with a more serviceable instrument, in my opinion, than the German one, and of Rokitansky, confirm the unfavorable estimate of the cephalotribe given by me in the above paper? Perhaps Braxton Hicks may be able to dispel this opinion, and perform, what he professes to do with his cephalotribe, with which I am sorry to say I am not acquainted, and of which I have hitherto only read and heard as the craniotomy forceps. For the sake of suffering womanhood, whom I would fain spare the sad necessity of looking upon the Cesarean section as their last and somewhat dubious chance, I hope Braxton Hicks and Barnes will be able to realize their expectations and reduce the limits within which craniotomy can be performed, without injury to the mother, to an antero-posterior diameter of 1″.

Up to the present date we are accustomed to look upon deliveries by craniotomy under 2″ conjugate diameter, without bad results to the mother, as instances of peculiar good luck or as freaks of nature, just as we must consider the repeated spontaneous birth of the child in the case of Mehrwald related above.

In minor degrees of pelvic deformity (not under 3″ conjugate) the delivery can, doubtlessly, easily be accomplished by the cephalotribe, but certainly more easily and safely still with the cranioclast. Below 3″ the cephalotribe by its size and uncertain hold becomes a dangerous and often useless instrument, and the cranioclast is infinitely preferable, and below 2″ at the most, the Cesarean section is the only resort for the delivery of a full-grown child at term. I think that Dr. Parry is certainly taking the correct view of the question when he advocates the more frequent performance of gastro-hysterotomy in extreme cases of deformity, in preference to the employment of the cephalotribe, as has hitherto been customary. When performed at an early period, and under otherwise favorable circumstances, the mortality after Cesarean section should really be but little if any larger than after ovariotomy or the amputation of the thigh in the upper third.

The following is an illustration of how an apparently most unfavorable case can occasionally be unexpectedly brought to a happy termination: J. K., 29 years old, entered the Wurzburg Lying-in Hospital in August, 1868, in labor with her fifth child. The last confinement had taken place without difficulty fifteen months before. On examination the pelvis was found to be exceedingly contracted, the character of the deformity and the history of the case making it perfectly evident that mollities ossium was the cause of the trouble. The diagonal conjugate diameter was 3″ 3‴. Deducting 3‴ for the pelvic inclination and 6‴ for the bill-shaped deformity of the anterior pelvic wall, we

have an actual conjugate of 2″ 6‴. The promontory of the sacrum was twisted towards the right, and the spinal column towards the left side. As there seemed to be very little chance of extracting the full-grown child through the natural passage, all the preparations for the Cesarean section were made, which, the mother being in good condition, was postponed until the pains had reached a sufficient intensity and the os had arrived at the prescribed state of dilatation. After the labor had been going on for 47 hours, it was found that the head was gradually adapting itself to the deformed pelvis and, although the scalp was considerably swollen, was advancing into the pelvic cavity. As an experiment, which could do no harm, it was decided to make a few gentle tractions with the forceps, which, to our great surprise and delight, succeeded in developing a living child at the fifth traction. The child weighed 6 lb. 13 oz. Bavarian. On the right parietal bone was a large cephalæmatoma, under which—the child dying on the ninth day under the symptoms of compression of the brain—was found a star-shaped fracture, caused by the pressure of the promontory. The mother left the hospital well on the eighth day.

The unforeseen fortunate termination of this labor was doubtless owing to the fact that the bones of the pelvis, softened during the process of osteomalacia, had not yet become hard and brittle again; that the head being continually pressed against them by the uterine contractions gradually forced them apart, a procedure which was assisted and completed by the forceps. A year later the same woman was again seen in the fourth

month of pregnancy. The pelvis was still more contracted, and artificial abortion had to be induced.

This case is so much out of the common run, that I do not pretend to draw any other inference from it than perhaps the expediency of following the same plan in a similar instance, and only desire to relate it for its peculiarity.

A CASE OF LIPOMATA.*

BY JAMES S. BAILEY, M.D., Albany, N. Y.

LIPOMATA, or fatty tumors, are derived directly from connective tissue, and may occur in almost every part of the body.

They are most commonly met with in the early periods of middle life, when, generally, the tendency to development of fat is greatest; occurring in the majority of cases without apparent cause, though oft-times can be directly traced to local causes, as friction and pressure.

Erichsen mentions a case which was hereditarily transmitted to three generations of a family.

They sometimes occupy unexpected locations, though usually are found in subcutaneous cellular tissue.

Lipomata sometimes attain enormous size, and occasion great inconvenience by bulk and pressure.

In Jones and Sieveking's Pathological Anatomy,

* Read before the Medical Society of the County of Albany, February 26th. Also, presented to New York State Medical Society, at its Annual Meeting, February 4th.

mention is made of specimens weighing from twenty to forty pounds, and of measuring several feet in diameter.

Vogel also remarks that they frequently attain an enormous weight, and that they occur more frequently in women than in men.

They appear most often singly, but not unfrequently several exist together.

Rokitansky and Jones and Sieveking mention cases seated in the abdominal cavity of considerable size, and that they may affect individuals not otherwise prone to excessive fat formations.

Dr. T. H. Green, in his recent work on pathology and morbid anatomy says, in reference to the development of lipomata, that they grow from adipose or from common connective tissue. He remarks: "Adipose tissue, it must be remembered, is merely connective tissue containing numerous cells which are infiltrated with fat; and its growth consists either in the infiltration of more of these cells, or in a proliferation of the cells and an accumulation of fat in those newly developed.

"A lipoma in the same way originates by a localized proliferation of cells, which as they are produced become infiltrated with fat."

The growth of these tumors is very slow; they are usually encapsuled by a layer of fibrous tissue; and are usually round and lobulated, and may be separated from the surrounding parts readily.

The following case is one of unusual interest.

I never saw the patient during her lifetime, but was

requested to make the autopsy, at which time the following history was obtained from her daughter, with whom she had lived.

Margaret Remmert, æt. sixty-nine, German, widow. Has had eight children; has now three living. She began to menstruate at fifteen, and ceased at forty. At the age of fifty-seven, twelve years ago, she began to experience a heavy feeling in the bowels, as if a menstrual period was about to set in.

This feeling grew more decided, and located itself on the left side, low down. A tumor appeared, and as it grew in size, the sensation of weight increased. Mrs. R. seems never to have had pain except such as might be attributed to pressure upon the surrounding viscera.

She has complained a very little of disturbance on the right side. Her bowels have been very irregular, a period of constipation being followed by a watery diarrhœa. Has been troubled with hemorrhoids; otherwise was always a healthy woman. Has never been under medical treatment up to the time of her death. She took to her bed early in June, and died October 30th, 1872.

AUTOPSY.

Sectio cadaveris eighteen hours after death.

External Appearances. — Rigor mortis slightly marked. Body much emaciated. Tumor of abdomen projecting abruptly over the brim of the pelvis, irregularly rounded over and reaching up under so as to bulge out the four lower ribs equally on both sides.

Abdomen.—Walls very thin. On right side, directly under the parietal peritonæum, a mass of fatty tissue, itself covered by peritonæum, reaching from the brim of the pelvis to the liver, which it crowded upward; it was divided into a large and small portion so as to resemble a liver, weighing fifteen pounds and two ounces, very slightly vascular except at its point of attachment, which was broad and slightly defined, located about the brim of the true pelvis and coming from the posterior ligaments of the uterus.

On the left side, and over-lapped by this, was another tumor considerably larger, weighing twenty-two pounds, and filling the most of the remaining abdominal space.

Its surface was nodular, covered by peritonæum and lying next to the abdominal walls; a branch of the inferior mesenteric artery passed into it. It was composed of fatty tissue mainly, and had on its under surface a cyst, holding about eight ounces of fluid. It was attached to the right posterior ligament of the uterus, a part of the rectum being included, and a part of the descending colon was attached to it. The meso-colon seemed to be reflected over it.

Both tumors turned out without peritoneal adhesions.

Intestines small, and compressed posteriorly to the tumor, but otherwise normal; cæcum *in situ*, and somewhat adherent; transverse colon, with the omentum and stomach, crowded above the tumor into the epigastric and right and left hypochondriac region.

Liver atrophied, one-third in size, displaced upward, the lower edge being above the eighth rib. Gall-bladder much distended.

Kidneys small and flattened, in points granular.

Spleen adherent, small, and nodular, and with a leathery feel.

Ovaries of normal size, broad ligament free. On the left Fallopian tube, near the fimbriated extremity, two small cysts the size of a pea.

Uterus was about the size of that of a menstruating woman; flattened and containing a thick mucous secretion; peritonæum thickened posteriorly.

Pelvis deformed by a large bony projection inward, from the symphyses knuckle-shaped; measuring from the sacral promontory three and three-quarter inches.

Thorax.—Excepting old pleuritic adhesion, the viscera was entirely healthy.

This case, by early surgical interference, could have been relieved, and perhaps the life of the patient might have been somewhat prolonged, although her life-time nearly embraced the period allotted to mankind.

The upper tumor seems to only have derived its nourishment and support from the surrounding tissues, as no blood-vessel of any size was observed to have penetrated the tumor.

Death in this case seems to have resulted from pressure of the lipomata upon the surrounding viscera, diminishing the capacity of the stomach and the vessels contributing to the absorption and appropriation of food.

The hereditary tendency referred to by Erichsen seems in this case to have been verified, as a sister three years younger, and her daughter, just passed the meridian of life, are likewise affected.

CASE OF SYPHILITIC HYPERTROPHY OF THE CLITORIS: REMOVAL WITH THE ELECTRIC CAUTERY BY PROF. T. G. THOMAS; DEATH THIRTEEN DAYS AFTER, FROM PERITONITIS DUE TO SALPINGIAN DROPSY.

Reported by W. G. WYLIE, M.D.,
Senior Assistant House Physician in the State Woman's Hospital, New York.

MARY C——, æt. 25, was admitted into the Woman's Hospital December 19, 1872, in the service of Dr. T. G. Thomas. Her history was given as follows: had been married five years, but was never pregnant. Three years ago she began to suffer considerable pain and soreness about the vulva. Upon investigation, she discovered an ulcer which proved to be a chancre, soon after which she had all the symptoms of constitutional syphilis, from which she has suffered considerably since. Soon after this she noticed a small tumor at the upper part of the vulva, which steadily increased in size. At first it gave no inconvenience, but in time it interfered with locomotion.

She came to the hospital on account of a tumor hanging out of the vulva, which resembled somewhat a polypus of the uterus, and of the size of an orange, with a pedicle two inches in diameter. On close examination it was found not to arise from within the vagina, but from the upper part of the vulva, and proved to be the hypertrophied clitoris.

The upper portion of the tumor was hard, and the entire mass looked very much like the skin when affected with some of the forms of elephantiasis. There was a slight ulceration around the meatus urinarius.

Syphilis being regarded as the primary affection, the patient was given potass iodid. gr. x., three times daily, until January 4. On that day she was anæsthetized, and the tumor was removed by Dr. T. G. Thomas, in the following manner, with the electric cautery, assisted by Dr. B. F. Dawson and the house staff.

Two stout silk ligatures were passed, at right angles to each other, through the pedicle, to be used in case of hemorrhage and to aid retraction. A noose of platinum wire, with the usual handle, was then placed around the pedicle just anterior to the silk ligatures, and, by means of the screw in the handle, tightened around the part. The handle was then connected with the wires of the battery and the current connector closed. The platinum noose, instantly becoming red hot, was carefully and slowly tightened as it burnt through the tissues, until the mass was cut through and removed, without the loss of any blood, in about three minutes' time. A slightly concave eschar, about one and a fourth inch in diameter, was left, from which not a drop of blood oozed. For several days the stump was dressed with black wash, but free suppuration coming on, it was changed to ung. zinci oxid.

January 17.—Thirteen days after the operation, the wound was looking well, and the patient's general condition was excellent.

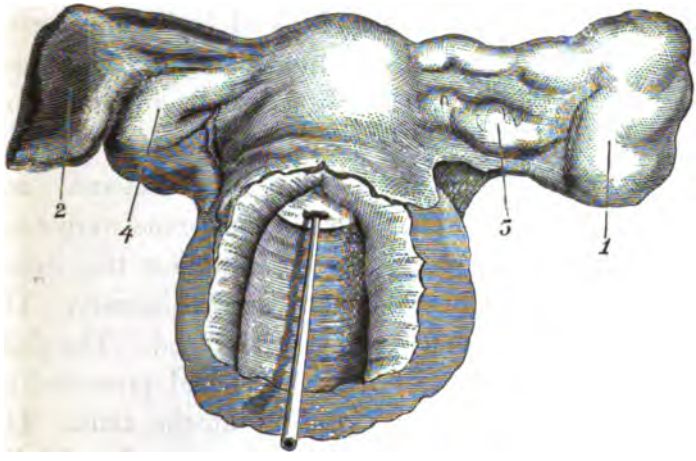
At six and a half P.M. she had a well-marked chill, and complained of intense pain over the abdomen. At ten P.M. her pulse was 108, and the temperature 103½, and the usual symptoms of acute general peritonitis were well marked.

January 20.—Although carefully watched and kept well under the influence of morphia, she was evidently sinking, and died at six P.M.

January 21.—Autopsy. On opening the abdomen the usual signs of acute general peritonitis were found. The uterus and its appendages being removed, old adhesions, evidently those of pelvic cellulitis, were found, especially anteriorly.

The Fallopian tubes were both distended to the size of hens eggs, and filled with decomposed pus. The left one had a small perforation near its extremity, from which pus exuded.

The following illustration gives a view of the uterus and appendages as they appeared, the vagina having been opened.



1. Right Fallopian tube, unopened and filled with pus.
2. Left distended tube, partially emptied of its pus.
3. Right ovary.
4. Left ovary.

The vagina is opened, showing probe within cavity of uterus.

CASE OF VAGINAL HEMORRHAGE IN AN INFANT FIVE DAYS OLD.

BY SAMUEL C. BUSEY, M.D., Washington, D. C.,
One of the Physicians to the Children's Hospital, etc. (Read before the Clinico-Pathological Society.)

MRS. V—— gave birth to a female child on Tuesday, Jan'y 31st, 1871, at 10 o'clock P. M., after an unusually speedy and easy labor. When I reached the house the child was born, and the pulsations had ceased in the cord.

On Monday, February 6th, at 4 P. M., I was summoned in great haste, and was informed by the nurse that the child had been bleeding since the previous afternoon. The diapers worn during the preceding twenty-four hours were stained with blood. I found blood clots in the vulva and blood stains on the external labia. The stains and clots having been wiped away with a soft moist cloth, fluid blood oozed from the vulva and trickled over the fourchette. No abrasion could be discovered. The labia external and internal and the folds of mucous membrane were swollen and turgid. During the examination the infant passed water freely, copiously and painlessly. The urine was normal and unmixed with blood. The child had been perfectly well from birth and presented no symptom of disease or suffering at the time. The mother insisted that it was premature, but I could discover no fact confirmatory except its probable undersize. She had been in feeble health, suffering from debility, anæmia, and occasional attacks of intermittent

fever; miscarried at the 6th month in February, 1870. Nor could I recognize any circumstance justifying the diagnosis of precocious menstruation. Even the milky fluid occasionally found in the mammæ, and the precocious development always consecutive with precocious menstruation were absent.

The hemorrhage continued through the 7th and 8th, and ceased spontaneously during the afternoon of the 9th—thus lasting four and a half days. During a very careful examination of the parts on the 8th, the bladder was evacuated, and the urine, being caught on an oil-silk cloth, was carefully examined, with a view to discover any admixture with blood. None was recognized.

I endeavored to determine positively whether the blood came from the vulva or vagina; and though, from the smallness of the parts and tumefaction of the mucous membrane, I cannot positively assert that the blood poured through the aperture of the hymen, yet I believe it did. As I separated the external and internal labia, the blood dribbled over the fourchette and was confined to a single steady stream coming from the direction of the aperture. No point could be seen on the surface of the parts in view, from which blood oozed. During the continuance of hemorrhage, and for some days subsequently, the child wasted much and rapidly, and not for several weeks after resorting to artificial feeding did it recover. I attributed the emaciation to deficient and defective nutriment, rather than to loss of blood. Vogel (p. 471, Diseases of Children) states that in two cases, observed by him,

"profuse intestinal catarrh and atrophy ensued in a few days," while Ollivier of Angers* affirms "that it is not uncommon in children at the breast, the flow lasting from seven to fifteen days, ceasing spontaneously, without any apparent effect upon the child."

This case is to me a novelty. Drs. Thomas Miller, and W. P. Johnston, gentlemen who have had very considerable experience in obstetrics, inform me they have seen similar cases—the latter several; yet authors on obstetrics forbear to mention it. Vogel and Bouchut simply call attention to it,—one denominating it vaginal, the other vulvar hemorrhage,—hence the conclusion is, that both deny its relation to menstruation. Bouchut does so in express words, but it appears, from a reference by Bouchut, that Ollivier maintained the opposite view, holding that it is a "sort of prelude to the function which should be established at puberty."

The inquiries suggested by this case are: 1st. Was the hemorrhage vulvar, vaginal or uterine? 2d. What was the cause of the hemorrhage?

It seems clear that the source of the blood was posterior to the hymen. As the external and visible parts were swollen and turgid the inference seems fair that the uterus and vagina were also congested. Admitting the temporary increased vascular supply of the vagina and uterus, which in infants are but slightly supplied with blood, the probability would point to the mucous membrane of the uterine body as the locality of the hemorrhage, both from its nature and structure, and known lesser resistance which it offers to the blood

* Bouchut. Diseases of Children, p. 552.

pressure, and also to the relatively greater pressure of the blood against the uterine than against the vaginal mucous membrane, in the event of any determination of blood to the internal genitalia. The uterus is supplied with blood through the spermatic and uterine arteries. "The arteries (Savage) of the uterine body are strikingly flexuous; they ramify on its outer cortex beneath the sero-muscular platysma; immediately on perforating the latter, some take a remarkably spiral course in the central, more vascular medulla; others become straight in making their way through the inner cortex to run between the duct tubes to the capillary trellis-work." The arteries of the cervix and vagina are fewer, less tortuous, do not terminate in the form of a network; each papilla is supplied with a capillary loop. The disposition of the veins corresponds to that of the arteries. "The female pelvis (Savage) is especially remarkable for the number and variety of its venous collocations." The entire surface of the uterine body beneath the musculo-serous platysma is covered with a plexus of veins, and the "more central and finer veins are continuous with the minute inter-muscular spaces in the erectile uterine medulla." The lining membrane of the cavity of the body is but one twenty-fifth of an inch thick (perhaps less in an infant), is "permeated by innumerable large capillaries, which form on its surface a vascular trellis with very thin walls," not easily detached from the subjacent tissue; its epithelium is ciliated, very loosely attached, and when separated the capillary trellis is exposed. The cervical membrane is more firmly organ-

ized and never exfoliates. The vaginal is covered with pavement epithelium. These considerations of the varying organization of the several parts seemingly warrant the probable inference that hemorrhage occurring in the newly born is a bloody exudation from the cavity of the uterine body. Bouchut refers to two autopsies by Billard, of two little girls who died after birth, in whom "clots of blood were found in the cavity of the uterus." Resorption and secretion are the functions of the cylindrical epithelium, and wherever the osmotic exchange between the fluids and gases in the lumen of the mucous tracts on the one side, and the blood on the other, is active, there the cylindrical epithelium is to be found. The pavement epithelium of the vagina passes into the cylindrical at the external orifice of the uterus. Menstrual blood escapes through a surface lined with cylindrical epithelium. Whether as a hemorrhage through rupture of continuity or as a transudation, is immaterial, inasmuch as the fact is manifest, that either the blood pressure is greater or resistance is less in the cavity of the uterine body than in the vagina, though all the internal genitalia may be gorged with blood. Apart from any consideration of the wisdom and purpose of nature in adapting the cylindrical epithelium to the functions of resorption and secretion, the sudden transformation of the pavement into the cylindrical at the external uterine orifice is nature's provision to promote and facilitate the functions peculiar to that organ; and this adaptation of structure to purposes is illustrated in the unvarying result of a determination of blood to the internal geni-

talia, whether it be the menstrual molimen or a hemorrhagic molimen. If blood escapes, it passes out through the surface of the cylindrical epithelium and not through the pavement; in other words, through the uterine and not through the vaginal surface. Again, under a like condition of vascular fulness, be it inflammatory congestion or simple hyperæmia coincident with ovulation, blood may be effused from the internal uterine surface, and a "Fluor albus" from the vaginal. The cause of these different results must lie in difference of structure and organization, and adaption of organization to function. The casual observer might refer these hemorrhages to some traumatic lesion of the mucous tract, yet no one of the authors who have referred to this subject has ever suggested the probability of the hemorrhage finding its cause in injury of the mucous membrane.

Was the hemorrhage menstrual? It did not recur. There was no unusual development of the mammæ. They did not contain any milky fluid, nor were there any of the signs of puberty present. M. Mallat, says Bouchut, "has remarked a child who had, some days after birth, vulvar hemorrhage, followed by the formation of a vaginal clot. At the same time, swelling of both mammary glands was observed. . . . Dr. Camerer has observed a similar case, four days after birth of a little girl at full term. Some drops of blood escaped by the vulva, and the flow did not re-appear. Five days afterwards the breast became momentarily swollen, and the child remained in good health. Barrier cites a precisely similar case." Ollivier of Angers, who has

observed a number of cases, holds that it is a "sort of prelude to the function which should become established at puberty," from which view Bouchut dissents, and maintains that such views can only be established by the periodical reproduction of the flow or by an anatomical examination of the ovaries. Holmes regards it as a trivial affection, without any connection with the menstrual function. Vogel coincides in this opinion. It lacks the essential quality of menstruation—periodic reproduction. The age of the infant is not a conclusive objection. The cases of precocious puberty are too numerous to recur to, and even the cases wherein menstruation took place and recurred regularly prior to the second dentition, are sufficiently numerous to establish the fact that age is not conclusive. Dr. R. P. Harris, in a paper (published in the third volume of this *Journal*, page 611), asserts that the first appearance of the menses is more common during the first, second and third years of infantile life, than in the fourth, fifth and sixth. In Rowlet's case, the child menstruated at one year; Schmidt's, at two; Sir Astley Cooper's at three; Susewind's at twelve months; De-Leuhossek's at nine months. One reported by Dieffenbach, and one by D'Ontrepout, regular at two years and pregnant at eight. Cornarmond reports one regular at three months; Descuret one at two years. Le Beau's menstruated at three, and regularly till fourteen. Parvin's (*American Practitioner*, vol. ii. p. 126) case at three and six months. In Rowlet's, Schmidt's, Cooper's, Le Beau's and Parvin's cases the breasts were well formed and the pubes were covered with

hair. In Fluegel's case (Bayr. ärtzl. Intell.-Blatt, Nr. 49, 1871) menstruation began at one and a half years, and continued with tolerable regularity until her death at five and a half. The external genitals were well developed, without hair, and the pelvis was roomy. Rowlet's gave birth to a living child at ten, and Schmidt's to a dead fœtus at eight and ten months. In Kussmaul's case menstruation made its first appearance at two years, and conception, "followed by a normal birth of a completely developed fœtus," took place in the eighth. In Cummin's it commenced between the eighth and twentieth days of life, and in Kerkring's and Langlade's cases, menstruation appeared regularly from the day of birth. In Dr. Parvin's case (*American Practitioner*) it began at one month and recurred regularly every twenty-eight days, lasting from four to six days, until the child was one and a half years old, and then ceased. The child is now four years of age, and it has not returned.

The child referred to in this paper has been under observation since its birth. There has been no recurrence of the bloody discharge, and the child has been remarkable for its good health and rapid growth.

ON SCARLET FEVER.

BY BRADFORD S. THOMPSON, M.D.,
Statistical Secretary of the New York Academy of Medicine, etc.

(Read before the Medical Library and Journal Association of New York, January 10, 1873.)

BY clinical observation, the comparison of statistics, and the analysis of theories and cases of this zymotic and infectious malady, which carried off in 1871–2, the Bishop of Salisbury, Dr. Thomas Hawkes Tanner, and other renowned men, perhaps the grain may be partially separated from the chaff; if so, then our labor will not have been in vain.

Dr. Budd, of England, a writer whom we all respect, remarks, "that if science can point out practicable conditions by which great maladies may be averted, society is, in the highest degree, not only unwise but blameworthy, if these conditions are not realized." Especially is such the case when we consider such a disease as this, which every year slays from twenty to twenty-two thousand persons in England alone.

There are few diseases which cause greater anxiety, suffering, and mortality, than scarlet fever. Everywhere we meet with it and hear of it—in public institutions and in private dwellings; in large towns, in small villages, and in remote country houses; in the cottage of the poor, in the parsonage and in the palace —no class of life is exempt from the scourge.

Scarlet fever, or scarlatina, an Asiatic disease, was first accurately described by Ingrassia, of Naples, A. D.

1500; it was named by him *Rossalia.* In 1565 it was epidemic in Paris, and was named by Ballino as *Rubiola:* he carefully distinguishes measles from it, as *morbilli.* In 1580, it is known in Spain as the *garotillo;* in 1680 in Italy, as *morbilli ignei.* In 1650, according to one author, it was first recognized in England as a disease differing from measles. The late Prof. Nathaniel Chapman, of Philadelphia, stated that it appeared in London in 1669; but Sydenham's view was, that its appearance in London, even in 1690, was more in name than in reality.* Dr. Richard Inglis, of Detroit, Michigan, says that measles was undoubtedly confounded with scarlet fever and mistaken for it in the majority of cases until the appearance of Dr. Withering's essay on this fever in 1793. It is comparatively a new disease in the United States. A correspondent of the *Medical Record,* November 1, 1866, in an interesting communication on "Laws Connected with the Propagation of Scarlet Fever," states that it was never known as far south as North Carolina previous to 1830; and Dr. Benjamin Rush, remarked sixty years ago, that scarlet fever was so rare that one physician would not be likely to see it more than once in his lifetime. Probably the first record of its appearance in this country is an account of an epidemic which broke out in Kingston township, Mass., in 1735. Dr. Douglass, of Boston, has left a record of it under the title of the "Practical History of a New Epidemical Miliary Fever with an Angina Ulcuslosa." It spread itself through all the New England colonies with ter-

* *Detroit Review of Medicine and Pharmacy,* December, 1871.

rible rage, in opposition to the united endeavors of the profession.

The disease is rare beyond the Rocky Mountains, and is little seen in San Francisco and other parts of California. It has maintained a steady foothold since January, 1869, to the present time, in the following Western cities: St. Louis, Chicago, Detroit, Cincinnati, and Buffalo.

It is rarely found in India, and is not indigenous, nor has it ever occurred among the natives of that country.* According to Dr. Simmons, of Yokohama, who has had an experience of thirteen years there, scarlet fever is unknown in Japan.

There was a severe epidemic of this disease in Philadelphia, in 1869, showing a large increase of deaths over the previous year, and the highest that had been attained since the year 1861. The whole number of deaths was 799, or 5.9 per cent. of all the deaths. Of these, 403 were males and 396 females; 45 were under one year of age, 128 were between one and two years, 411 from 2 to 5 years, 4 between 30 and 40, and one between 80 and 90 years.

Dr. Charles Carroll Lee, of New York, speaks † of a severe epidemic in 1865, occurring in Blockley Hospital, Philadelphia.

Of 2,765 deaths from 1818 to 1819, in Philadelphia, from all causes, only one case of scarlatina is recorded.‡ About one-twentieth of the deaths from all causes in the State of Rhode Island, for the last

* *Western Lancet*, January, 1873.

† *N. Y. Medical Journal*, 1867.

‡ Rhode Island 19th Registration Report, 1871.

eighteen years, were from this fever. Deaths from the malady in the State of Illinois for eleven consecutive years previous to 1867, averaged nearly 4 per cent.

The mortality from the disease in the city of New York for the subjoined years was as follows:—5 cases in 1819, 5 in 1820, 3 in 1821, 1 in 1822, 2 in 1823, 3 in 1824, 10 in 1825, 24 in 1826, 4 in 1827, 11 in 1828, 188 in 1829, 246 in 1830, 258 in 1831, 224 in 1832, 179 in 1833, 408 in 1834, 174 in 1835, 202 in 1836, 579 in 1837, 257 in 1838, 158 in 1839, 391 in 1840, 517 in 1854, 1,052 in 1855, 1,263 in 1856, 1,325 in 1857, 668 in 1858, 840 in 1859, 1,929 in 1860, 1,278 in 1861, 928 in 1862, 903 in 1863. During the 27 months ending December 26, 1868, there were 1,757 deaths from scarlet fever in this city, and 966 in Brooklyn, a total of 2,723—or 1 death, in 1867, to 1,039 inhabitants; 1 in 1,049 in 1868. Of these, 2,100 were under 5 years of age. In 1869 there were 1,314 deaths, or 1 death in 1,065 of the population; of these, 1,050 were under 5 years. In 1870 there were 975 deaths in New York City, or 1 death in 1,025 of the population; of these, 753 were under 5 years of age. The mortality in this year was greater than any year since 1861.

Of the 5,271 deaths from 1866 to 1870, inclusive, 3,903 were under 5 years of age; 8 only were above 30 years; of these, 2 were 30 years old, one 35, 2 were 40, one 45, and 2 were 60 years; 445 were under one year, 878 between one and two, and 918 were two years old. Those over 30 years of age were females.

Our researches in reports at home and abroad show that the majority of deaths reported from the age of 25

years and upwards, are among females. Statistics also exhibit the preponderance of the disease, and its mortality, in males over females. In the year 1871, 796 deaths occurred in this city; in that year 2,850 cases were reported.

The three most fatal epidemics of the year 1872, were scarlet fever, small-pox, and cerebro-spinal fever. Dr. Charles P. Russell, Register of Vital Statistics of New York, in his last report, regards scarlet fever as our most constant epidemic, and its mortality in 1872 (990), although greater than in 1871, was not up to the average. Its mortality approached 32 per cent.; 725 of its deaths occurred among children less than 5 years of age, 193 between 5 and 10, 38 between 10 and 15 and 34 over 15 years, the oldest being a male between 40 and 45. Of all its deaths, 667 took place in the first six months of the year.

In Boston, Mass., in the ten years from 1811 to 1820, the deaths from scarlet fever were 30; 1821 to 1830, 48; 1831 to 1840, 972; 1841 to 1849, 1,468.

Dr. Ballard, of London,* read a paper before the London Association of Medical Officers of Health, on "Scarlet Fever and its Fatality, as affected by Age, Sex, Season, and Epidemics," his remarks being based upon a registration of diseases in his parish of Islington, extending over the 12 years 1857–1868, and including three epidemics. His tables gave a total of 2,375 pauper cases—making 10,000 living his basis of calculation; and taking the whole population into account, his tables showed that under 5 years of age there

* *British Medical Journal*, Dec. 4, 1869.

were 418 cases; from 5 to 10, 544; from 10 to 15, 224; from 15 to 20, 72; from 20 to 40, 24 cases—and so on. He refuted the statements of various authors as to the influence of age—an author having asserted that *early* infancy and extreme age were exempt from attack. His register exhibited a case of a child only 5 weeks old, and another 74 years of age. His tables showed a percentage of 2½ under 9 months old. Children under 10 years of age were most liable to attack, and the greatest prevalence was between the ages of 5 and 10. His table gave no indication of the period of first dentition, or of second dentition, being particularly liable.

Prof. Austin Flint, in his work on "Practice of Medicine," states that the disease occurs most frequently in the third and fourth years of life; that the liability to it diminishes rapidly after the fifth year, and becomes very small after 40. Of 2,402 cases admitted into the London Fever Hospital during 20 years, only 4 were above 50 and one above 60. Cases have been reported in which the disease has been contracted *in utero*.

With regard to sex, Dr. Ballard showed that there was a slightly greater liability on the side of male children under the age of 5, and on the side of females between the ages of 5 and 10. The fatality of the disease seemed to lessen from infancy, when it was greatest, up to the age of 15, and onwards. The fatality was also greater in males than in females up to puberty, when the state of the disease became reversed.

According to Dr. J. Netten Radcliffe,* the Registrar-

* Ranking's Abstract, vol. xli. 1865.

General's returns of scarlet fever for the whole of England, include two periods of 5 and 16 years respectively. The first period extends from 1838 to 1842, and the second from 1847 to 1862, inclusive. During these 21 years 310,720 deaths from the disease were registered; the average annual mortality was 14,796. The death rate of 1863 was 174 per 100,000 population, being more than double the annual average of the 26 years 1838–64. Scarlet fever carried off in the year 1864 in England, 29,700 persons; in Ireland, 2,653 died in that year. The mortality from the fever in 1868, in England, was 21,912, or 1 in 990; Scotland, 2,253, or 1 in 1,416; Ireland, 2,707, or 1 in 2,048. Dr. Murchison's Annual Report of the London Fever Hospital for 1869,* shows that the disease was more prevalent in London and throughout England than in any year since the publication of reports by the Registrar-General. This is confirmed by the 12th Annual Report of Mr. Simon, medical officer of the Privy Council, who asserts the great epidemic of the year 1869 in England was scarlet fever. There were 5,803 deaths in London alone. The total deaths from the disease throughout England were not less than those in the epidemic of 1863–4, when scarlet fever destroyed more than 60,000 persons. A large proportion of these deaths were ascribed to the neglect of individuals and of local authorities.

Of 1674 persons dying from this malady during the 13 weeks ending Oct. 1, 1870, in London and 19 other large towns, 64 per cent. died under 5 years of age, and

* *British Medical Journal*, April 9, 1870—May 21, 1870.

33 per cent. died between the ages of 5 and 20, leaving only 3 per cent. of adult deaths from this cause.

Geo. Rigden,* Surgeon to Canterbury (England) Dispensary, says that from the years 1839 to 1865 inclusive, epidemics of this disease have occurred in Canterbury with considerable regularity about once in four years. The death-rate was about 1.7 per cent. of the mean of the population.

Two distinct epidemics of the fever are recorded by Dr. Arthur Ransom, of Manchester, which occurred in Manchester and Salford, the first attaining its height in Oct., 1863, the second in Oct., 1868.

According † to the Registrar-General's annual summary for 1872, the death-rate of the fever in Great Britain was low, although small-pox was high. The Registrar considered it satisfactory that fever-deaths were declining from 3,689 in 1864, to 1,746 in 1872. This he accepts as a sign of the improved sanitary condition of the metropolis. Next to typhus fever, the most fatal of the infective diseases which occur in England is scarlet fever.

In North Holland, during the years 1866, 7, 8 and 9, with a population of 570,742, there was on an average 192 deaths from this cause per year, or 1 in 2,900 inhabitants. In Amsterdam, with a population of 266,681, there were 146 deaths per year, or 1 in 1,900. South Holland, with 679,950 inhabitants, there were only 16 deaths per year, or 1 in 42,374 inhabitants. Rotterdam, with a population of 116,650, 8 deaths per year,

* *British Medical Journal*, April 17, 1869.
† *British Medical Journal*, Jan. 21, 1872.

or 1 in 14,511. The kingdom, 3,576,382 inhabitants, 1,094 deaths per year, or 1 in 3,270.

The interesting and important communication by Dr. A. M. Ballot,* relative to the "Epidemics of Small-pox, Scarlatina, and Measles, in Rotterdam," Holland, from the year 1778 to 1811, and from 1815 to 1870, shows that in the third period, from 1841 to 1870, small-pox and scarlatina were diminishing from that city, while measles was increasing. In answer to his inquiry, "Why is the susceptibility for measles increased, and that for scarlatina diminished?" we find, from an extended research, etc., that the climate during a greater portion of the third period, 1841 to 1870, in which the epidemics prevailed, was dryer than usual, or, in other words, there was less local moisture in that section, which may partially account for the decrease of scarlet fever, also the small number of deaths. During the last twenty years more attention has also been paid in that city to cleanliness and fumigation. Although both scarlet fever and measles are communicable and infectious, there seems to be a great difference in their contagiosity.

Dr. Elisha Harris truly says: "Taking the experience of cities and villages, the contagious virulence and epidemic ravages of this foe of childhood will be found in greatest force where local moisture and impurities about the dwellings and neighborhood are greatest—in other words, where general unhygienic conditions prevail."

The great experience of Dr. Ballard,† of Islington,

* *Medical Times and Gazette*, May 6, 1871.

† *British Medical Journal*, Dec. 4, 1869.

teaches us, that in regard to seasons, spring and summer are nearly alike in the liability to the disease; the number of cases increases considerably in the summer and attains the maximum in autumn. The disease is more disposed to spread when the mean temperature is from 56° to 60°. It is less fatal in summer than in winter. During the twelve years recorded by Dr. Ballard, there appeared to be, on the whole, most fatality when the disease was least prevalent; and dampness promoted fatality more than even a low temperature.

That scarlet fever may be due to blood-poisoning, clinical facts would seem to corroborate, as all the premonitory symptoms indicate malnutrition of the nervous system. Dr. Carpenter, of Croydon, England,* believes the disease to be common among slaughtermen and butchers, and their families; and in districts where a great quantity of blood passes into sewers, and becomes putrid, the fever will almost invariably break out.

Whether vegetable parasites—as asserted by Salisbury, of our own country, and Schurtz, Hallier, Hoffman, etc.—have a part in the development of scarlet fever and kindred diseases, remains for further investigation based on clinical observation. The name of *tilletia scarlatinosa* is given, by Hallier, to fungi, the spores of which were observed in the blood of patients with scarlet fever. Micrococci, in great numbers, have been found by Hoffman† in the linen wrappings which

* *British Medical Journal*, Feb. 4, 1872.

† Zeitschr. f. Paras, vol. iii. p. 105.

had been used as coverings in cases treated by cold affusions.

Acute observers, at home and abroad, show that outbreaks of the fever have been traced to use of milk. Dr. Bell, Professor of Medicine, University of St. Andrews, has recorded the facts concerning an outbreak by this medium which was infected by the desquamating cuticle thrown off from the hands of scarlatinal persons, milkmen of a particular dairy. And Dr. Michael W. Taylor, of Penrith, recites many cases occurring in various houses, which originated in this way. He brings irrefragable proof showing that the milk-carriers had not themselves the fever. Cases have been published by American observers, in medical journals, during the last five years, agreeing with the observations of Drs. Bell and Taylor.

In regard to the arrest, prevention, and propagation of scarlet fever, valuable instruction has been particularly given by Dr. W. Budd, Physician to the Bristol Royal Infirmary, Dr. Peter Hood of London, Dr. Aldis, parish St. George, London, Robt. Renfrew, of Glasgow, and Dr. John Harley of London.

Dr. Budd does not attach much importance to fumigating the sick-room with chlorine or sulphurous acid, during the whole course of the fever. He advocates the importance of having in the sick-room basins charged with chlorides or Condy's fluid, for the reception of bed and body linen immediately on its removal from the body of the patient. Renal epithelium, which is cast off so plentifully, he believes performs the same eliminative function as that which is cast off in

still greater profusion by the outer surface of the body.

Dr. Hood's experience shows that a free use of chlorine, during the course of the fever, in the sick-room will confine the contagion to that room. He causes large coarse towels, saturated with chloride of lime-solution, to be hung over the backs of chairs; also a sheet to be suspended in front of the door of the sick-room.

Valuable evidence is afforded in favor of the view that ordinary washing, even after the use of disinfection, is not sufficient to deprive the linen of the power of communicating the poison. Experience has shown that, in American and English hospitals especially, when the soiled clothing has been sent away from hospital to be washed, new cases of scarlet fever have been rare.

For rooms and bedding the popular disinfectant, fumes of sulphur, is one that is cheap, speedy, and effective. The periodical fumigations of crowded houses, and the saturation of drains, closets, etc., with carbolic acid, are highly beneficial—as particularly recommended by Dr. Druitt, of London, and now successfully carried out, in the main, by various Boards of Health.

In a paper recently read before the Royal Medical and Chirurgical Society, by Dr. Harley,* 28 valuable cases were detailed, showing the following pathological changes common to all: 1st. The formation of fibrinous clots in the heart and great vessels during a pyrexial

* *British Medical Journal*, Dec. 23, 1871

condition at any period of the disease. 2d. Marked derangement of the hepatic function. 3d. General inflammation of the lymphatic glands, which was always present.

The conclusion to be drawn was, that the pathological changes accompanying an ordinary case of scarlet fever included all those of the first stage of enteric fever, and that the transition from one disease to the other was but a natural pathological sequence, readily determined by any cause which might increase the intestinal irritation. His cases of co-existing enteric and scarlet fevers were not attributed to accidental occurrence. The term "abdominal scarlatina," Dr. Harley submits to the profession, for the contagious variety of enteric fever, after sufficient evidence for conviction.

Prof. Virchow has pointed out the following forms of *kidney-affections* after scarlatina—viz., forms of nephritis scarlatinosa:—1st. The catarrhal form, characterized by the proliferation of the epithelial cells in the tubes of the medullary substance, similar to that which takes place in catarrhal pneumonia. 2nd. The form known as "nephritis parenchymatosa," in which no proliferation of the cellular elements takes place, but in which change and degeneration of the cells is the rule. The form, formerly laid down by himself, "croupous nephritis," he could no longer recognize, as there was no disease of the kidneys which was characterized by a peculiar kind of fibrinous casts.

That *tubular nephritis may be the only symptom of scarlet fever*, is illustrated by a case reported by J.

Lewis Smith, M.D., at a meeting of the New York Pathological Society, January 11, 1871, in which a specimen of urine was presented showing tubular nephritis, passed by a girl 10 years of age, who, after a thorough exposure to the contagion of scarlet fever, showed dropsy as the only symptom of disease. He also referred to a somewhat similiar case that occurred to him two years before.

That *malignant scarlet fever may follow parturition* is amply shown by recorded cases. Dr. S. R. Millard, of Chicago, Ill.,* mentions the case of a woman who, five days after delivery of a child, was severely attacked with this fever, and died on the following day. The family which had occupied the house six months previously had this fever, and their beds, bedding and lounges were used by this patient, but were removed before her confinement. As far as could be ascertained, this seems to have been the only way in which she was exposed to the infection.

Ramsbotham, with other authorities, states that scarlet fever may lie dormant in the system for a number of weeks, and then break out with fearful severity a few hours after labor, and that the symptoms are those that usually attend its perfect development, but appear in the most aggravated form, and the scarlet rash intense in character not unfrequently.

Treatment.—Not one of us probably would have the hardihood to advocate the general use of the cold bath in this disease, as our ancestors did, and used even now by some practitioners, although in some cases cold

* *Chicago Medical Times*, June, 1871.

affusions may afford relief—especially in delirium. In the year 1825, Dr. Gregory, Prof. of Practice of Medicine, University of Edinburgh, carried out this idea to such an extent that, in the presence of medical friends, he immersed his own child in a tub of cold water, and in the course of a few minutes it expired. Pyæmic inflammation of joints, delirium, and cervical abscess, called by Trousseau, *scarlatinal bubo*, demand, according to Dr. John Kent Spender, of London,* the administration of quinine, comp. scammony powder, and locally, fomentations of hot medicated fluid to joint or joints, blisters to the scalp, and hot-air baths. That quinine is an *antiseptic* and *antipyretic*, is supported by the experiments of Binz and Cohnheim. In cervical abscess, to prevent the pus from burrowing among the muscles of the neck, early punctures should be made with the lancet laid flat on the skin. Delay might cause gangrene of the connective tissue, as mentioned by Graves and Trousseau.

One of the most serious evils following scarlet fever is dropsy; and our experience shows that the sheet-anchor in cases with congested kidney, associated with dropsy, is the tinct. ferri chloridi, combined with digitalis, as advocated by Dr. Robert Renfrew, and Dr. W. B. Cheadle, Physician to St. Mary's Hospital, London, Dr. S. T. Hubbard of New York, and others. Dr. Cheadle gives from a drachm to a drachm and a half of the infusion of digitalis to a child of from 2 to 3 years old for a considerable time with perfect safety. As far as the diuretic action of the drug is concerned, the

* *British Medical Journal*, July 16, 1870.

infusion is a far more reliable preparation than the tincture.

Dr. Chapin, of Michigan, is partial to the internal use of carbolic acid combined with tinct. of opii, chloric ether and glycerine, on account of its antiseptic qualities, also as an application to the throat; and Dr. H. T. Cleaver * speaks of 70 cases, in an epidemic in Iowa, in which relief was afforded by the application of this acid to the inflamed throat. In none of his cases were there any dropsical effusions as a sequel.

Croton oil, in scarlatinal dropsy, is given by Dr. Liddell, of England, in doses varying from $\frac{1}{8}$ to $\frac{1}{4}$ of a drop, rubbed up with mucilage, syrup and water. The dropsical symptoms, he avers, subside quickly, and the patients are not debilitated by the purgation.

Dr. Chas. Carroll Lee, of New York,† in referring to the epidemic in Blockley Hospital, Philadelphia, in 1867, remarks that the internal use of chlorine was resorted to in connection with milk punch and beef tea, when the ordinary treatment seemed incapable of arresting the anginose symptoms; and the ratio of recoveries was almost two to one in favor of the chlorine treatment; the cases were selected without reference to the severity of the symptoms.

Statistics show that a large percentage of the diseases of the ear, tabulated by English and American aural statisticians, owe their origin to scarlet fever. In 393 cases of ear disease, attended with otorrhœa, reported by W. C. Williamson, F.R.S., Prof. Natural

* *Iowa Medical Journal*, 1869.

† *New York Medical Journal*, 1867.

History in Owen's College,* this disease appeared to be the proximate cause in 171. The propriety, therefore, of guarding against these complications in our treatment, is apparent.

Drs. Geo. Johnson, of London, Chas. T. Thompson, of England, the late Prof. Geo. T. Elliot, and others, have inculcated the importance of ordering, in the early stages of the disease, hot baths. A daily packing for an hour or more in a warm wet sheet covered with blankets for the promotion of the outcoming of the rash, etc., is advisable if the patient is too feeble to bear the bath. We all know the value of Ronochetti's invention for promoting perspiration, and the usefulness of Richardson's and other spray-producers for the palliation of the throat symptoms. Dr. Chas. T. Thompson immerses his patients very frequently in the early stage, or as often as the strength of the patient will allow, more particularly to prevent the dissemination of the fever—by removing the excreta from the skin as soon as it is deposited—and to promote cuticular desquamation. This he has done for the last 15 years.

One of the first things to aim at is, to prevent the minute particles, which are the carriers of the poison, from being disseminated until they can be disinfected. This can be perfectly effected by anointing the surface of the body, scalp included, twice a day with camphorated oil, as recommended by Dr. Budd, or cold cream —the latter being more effective. Both are agreeable to patients, and give relief from the troublesome itching attending the disorder.

* *Manchester Medical and Surgical Reports*, 1870.

Dr. John C. Peters, of New York, is in the habit of ordering inunction from the first day of the eruption. He employs for the purpose simple cerate, ointment of rose water, camphorated cerate, or weak ammoniated oil. To prevent contagion, he uses an unguent of carbolic acid, and during convalescence the whole body, scalp included, is to be scrubbed; and until this is accomplished the patient should not be suffered to go out.

The following combination for a gargle is recommended by Dr. F. A. Burrall, of New York: Bromochloralum, glycerine, each a teaspoonful in a tumbler of water.

"As a contribution to the history of tracheotomy,* it is well to note that on January 8, 1834, Dr. Whiting, of London, at a meeting of the Hunterian Society of London, related a case of tracheotomy by M. Mackmurdo, in a patient of his, with scarlet fever, aged two years, in which recovery took place. At that time he knew of no other case in which the operation had been performed for glandular swelling, etc."

In concluding, we would remark that the case of Best *v.* Staff; recently mentioned in the *Medical Times and Gazette*, which after two trials remains undisturbed, is a warning to young and inexperienced practitioners who would guarantee patients from the propagation of infectious diseases. The case was one in which the owner of a lodging-house, at Eastbourne, brought an action against a gentleman and his wife, who brought their children from London during con-

* Oration of Thos. Bryant, F.R.C.S., before Hunterian Society, 1870.

valescence from scarlet fever, into the lodgings, without giving the landlord any intimation of the danger which his family were incurring. Two of the children of the lodging-house keeper took the fever and died. In the first trial the jury awarded substantial damages, and at the second trial the verdict was reaffirmed. The defendant relied greatly on the advice of his physician, who stated that there was no danger in carrying the infection. The editor thus remarks: "The moral to be drawn from the case is, that it is impossible to determine exactly the period in convalescence when persons can be exposed in their presence."

The following journals, not previously mentioned by foot-notes, were consulted in preparing this paper.

Reports of the Registrar-General of Great Britain.
British Medical Journal for 1868-1872.
St. George's Hospital Reports, vol. x., 1870.
Medical Record vol. i. vii.
American Journal Medical Sciences, 1870-1872.
Medical Times and Gazette, 1867-1872.
London Lancet, 1865-1872.
New York Medical Journal, 1867-1872.
Health Reports of New York City and Brooklyn.
Reports of St. Thomas' and St. Bartholomew's Hospitals.

CASE OF OVARIAN CYST TREATED BY INJECTION OF IODINE.

BY H. T. HANKS, M.D.,

Physician for Diseases of Women to the Demilt Dispensary, New York.

MRS. K., aged 36, married eight years, living singly for the past five; never pregnant; skin pale, body well developed and nourished; intelligent, active mind; industrious habits. Has suffered from several attacks of what she terms "inflammation of the womb and bowels," each attack following a menstrual epoch. But for the past four years, during which time she has been a patient of mine, she has had no serious illness except an attack of malarial fever in July, 1872.

Oct. 6, 1872.—She called at my office complaining of pain in the pelvic region. Upon examination I found a cervical catarrh, which yielded to the treatment of nitrate of silver. I saw her last for this difficulty October 31.

Nov. 5.—She had a severe chill lasting for more than an hour, followed by high fever, in which the temperature was 105°. Pulse 130. Resp. 30. This was succeeded by a short sweating stage. The temperature and pulse remained very high during all November 6, when pain, tenderness, and swelling were developed over pelvic organs. Complained of frequent paroxysms of pain in this region. Vaginal touch revealed the parts hot and dry; the os-uteri slightly tipped forward;

the cervix and body low down in the pelvis, firmly fixed in position considerably to the right of the median line. The disease passed through the regular stages of pelvic peritonitis, without the formation of pus. Having been accustomed to the use of morphine in her former attacks, she was now treated with unusually large and frequent doses hypodermically, with some aconite; and, during convalescence, iron and Peruvian bark.

Nov. 25.—She was so far recovered as to be able to sit up, but suffered considerable pain at times in the region of the womb, and continued the use of morphine in smaller doses.

Dec. 1.—She called my attention to a slight swelling over left iliac fossa. On examination I found a small oval tumor, apparently about two by three inches in size, in region of the left ovary. I did not satisfy myself of its nature, but feared it might be pus, the result of pelvic cellulitis, and accordingly I applied a blister, to be dressed with a starch poultice. On the following day, December 2, I found no change in the pulse, temperature, or respiration, and a vaginal examination convinced me that the tumor was not a cellular abscess, but undoubtedly an ovarian cyst. Dec. 3, she had a slight menstrual flux, which continued two days only.

Dec. 7.—The late Dr. James L. Brown saw the patient with me. Tumor distinctly felt through the walls of the abdomen, and by vaginal examination discovered to press close upon the fundus of the uterus, which, as previously stated, was held by adhesion to the right of the median line. We decided to test the character of the fluid with the hypodermic syringe. Accordingly I

inserted the needle and drew off about 2 drs. of clear amber-colored fluid. Upon application of heat this completely coagulated. The patient was advised to take gentle exercise, nourishing diet, and to await further developments.

During this month the patient appeared to depreciate so much in strength, that, although the tumor was small, Dr. Brown suggested the operation of ovariotomy in view of this and the following facts: 1st, the severe and constant pain which was excited by the presence of the tumor; 2d, the repeated attacks of pelvic peritonitis which it had thus far excited; and, 3d, the conviction, amounting nearly to certainty, that if the operation were performed at a late period, the tumor would be found bound down by strong pelvic adhesions. Under these circumstances we called in, as additional counsel, Dr. T. G. Thomas.

Jan. 3, 1873.—Dr. Thomas saw the patient with Dr. Brown and myself. The tumor had increased considerably in size, and was distinctly seen and felt through the walls of the abdomen, and as plainly felt by vaginal examination. It had occasioned the patient much pain and mental anxiety.

At this consultation the question of ovariotomy was especially discussed, Dr. Thomas taking ground against an immediate resort to it, and advocating as a compro mise emptying the sac by the aspirator. It was possible, he maintained, that the sac might not be ovarian, and that simple abstraction of its contents might cause it to disappear, while if its contents reaccumulated the operation of ovariotomy would still be at our disposal.

Jan. 5.—This operation was performed by Dr. Brown, in the presence of Dr. Thomas and myself. About thirteen ounces of fluid was removed, and the cyst entirely emptied. The patient suffered but little pain and was very comfortable in the evening. In the night, however, she had a severe chill, followed in regular course by fever and sweating. I was obliged to give large and frequent doses of morphine hypodermically.

Jan. 6.—She was much improved. Pulse 105 to 111. Temperature 102°. Slight tenderness over left iliac fossa, but no symptoms of extended inflammation were developed during this or the three succeeding days. Pulse and temperature diminished on the 9th, and she continued to improve up to the 13th, when I discovered the cyst partially filled again.

Jan. 20. Tumor was filling rapidly. It was, indeed, nearly as large as at the time of aspiration. The patient had suffered so much from pelvic pains, that she was anxious that the operation of ovariotomy should be performed.

Feb. 13.—Dr. Thomas saw the patient with me—the sudden death of Dr. Brown depriving us of his valuable counsel—and proposed again emptying the sac and then injecting it with tincture of iodine, so as to give the patient still another chance of escaping the operation of ovariotomy. This proposal impressing me favorably, he was requested to perform the operation.

Feb. 15.—Dr. Thomas tapped the cyst and drew out twelve ounces of fluid. He then reversed the action of the instrument and injected one ounce of tincture of

iodine, mixed with a pint of warm water, and then withdrew this solution. No enlargement or tumefaction remained. Patient suffered but little pain. Administer two-thirds of a grain of morphine hypodermically.

Feb. 16, 10 A.M.—Pulse 90. Temperature 99°. Respiration 18. Slept since operation and suffered no pain. Gave one-half grain of morphine hypodermically.

Feb. 17, 8 A.M.—Rested well; no change; took light nourishment; one-half grain morphine. 7 P.M., no material change.

Feb. 18, 10 A.M.—Pulse 100. Temperature 100°. Respiration 20. Some pain and tenderness of parts over and adjacent to left ovary. Slight induration and swelling discovered on examination. Increased the dose of morphine. 8 P.M., same condition. Treatment continued.

Feb. 19.—Pulse 96. Temperature 99½°. Respiration normal. No spreading of local inflammation around left ovary. Continued full doses of morphine.

Feb. 22.—Pulse and temperature nearly normal; some tenderness, induration, and thickening discovered in region of left ovary.

April 5.—Patient from last date took less and less morphine, and at no time since has the pulse been over 90. There is no return of the tumor, but some induration and thickening remain in region of left ovary.

April 14.—Since last date the menses have again appeared; and for three days a normal amount of blood escaped. The uterus is still firmly fixed low down in the pelvis to the right of its normal position.

The patient is able to partially oversee her household duties, and suffers only occasional pains. These can all be attributed to the disturbance consequent upon the displacement of the uterus.

Thus far there appears to be no tendency to reaccumulation of fluid in the sac, and I have every reason to hope that a cure has been effected. It is a well-known fact, however, that, even long after such a cure appears to have been accomplished, reaccumulation may occur. Should such an occurrence take place here I shall not fail to report it.

ON COMBINED EXTERNAL AND INTERNAL VERSION.

BY M. B. WRIGHT, M.D., Cincinnati, Ohio.

A Reply to Dr. J. Braxton Hicks's Letter in No. IV., Vol. V.

Editor Am. Jour. of Obstet.—My attention has been called to a letter on the above subject in this year's February issue of your Journal, and signed J. Braxton Hicks. The object of the letter seems to have been to make an issue between himself and Dr. W. S. Richardson, as to the originator of "The Combined External and Internal Version" plan of converting a shoulder into a vertex presentation.

It will be seen before I close this communication, that Dr. Richardson was right in using the expression, "Dr. Wright's Method," and that it does not in any way detract from the claims of Dr. Hicks. And it gives me great pleasure that I now have an opportunity

of meeting Dr. Hicks, not in jealous or angry discussion, but in the calm and friendly interchange of professional views.

My "Prize Essay on Difficult Labors and their Treatment" was not written for vain show, nor for self-glorification, but to contribute my mite to the demands of obstetrical science, and to discharge a duty justly claimed by the junior members of the profession. There is far more importance attached to the question, What amount of good is to be realized from a definite plan of action? than to the other question, By whom was it suggested? Still, as a discussion of the latter is the order of the day, I must not shrink from a participation in it.

It is apparent that Dr. Richardson has taken one standpoint, Dr. Hicks another—hence a difference in their conclusions. The latter has predicated his criticisms on the reported cases of gentlemen, whose object was mainly to show that cephalic version had been successfully performed by myself, as their counsellor, without deeming it necessary to describe the precise manner of its accomplishment.

Dr. Richardson, on the other hand, relied for a correct judgment on the language of the essayist. A paragraph taken from pages twenty-six and seven of my original essay reads as follows:—

"Suppose the patient to have been placed on her back, across the bed, and with her hips near its edge—the presentation to be the right shoulder, with the head in the left iliac fossa—the right hand to have been introduced into the vagina, and the arm, if prolapsed, to have been placed as near as may be in its original posi-

tion across the breast. The fingers are now to be applied to the top of the shoulder, and the thumb in the axilla, or such part as will give greatest command of the chest, and enable us to apply a degree of lateral force. *The left hand is also to be applied to the abdomen of the patient, over the breech of the fœtus.* Lateral pressure is to be made *upon the shoulders* in such a way as to give to the body of the fœtus a curvilinear movement. At the same time the left hand, applied as above, makes pressure so as to dislodge the breech, as it were, and move it towards the centre of the uterine cavity. The body is thus made to assume the original bent position, the points of contact with the uterus are loosened and perhaps diminished, and the force of adhesion in a good degree overcome. Without any direct action on the head, it gradually approaches the superior strait, falls into the opening, and will in all probability adjust itself as a favorable vertex presentation. If not, the head may be acted upon as in deviated positions of the vertex, or it may be grasped, brought into the strait, and placed in correspondence with one of the oblique diameters."

Can any one say, after reading the above, in justice to his own powers of perception, in view of his professed knowledge of language, and with a just claim to honesty of purpose, "that Dr. Wright only used the internal hand, not even mentioning the use of the *external one?*" Whose eyes did Dr. Hicks use when, "on reading over Dr. Wright's original paper," he failed to see the points so distinctly presented? The truth is, during the many years of my lecturing upon obstetrics,

I never failed, when cephalic version was the subject under discussion, to enforce the absolute necessity of action by the external hand.

To my mind, "Dr. Wright's method" and "Dr. Hicks' plan" are essentially different in principle and in practice. Dr. Hicks says, "In my plan I need only pass one or two fingers, and bring the head by the external pressure, and the internal fingers down to the os, and retain it there until the gentle uterine contractions have confirmed the new position." In this plan, it will be observed, the head of the fœtus is the only point on which action is brought to bear. According to the method of Dr. Wright, the head is not acted on at all, except incidentally in some cases. Internal force is applied to the shoulder, external force to the breech.

Again, the force used to change the position of the fœtus, in harmony with the two plans, is in *opposite directions.* The outside hand is used by Dr. Hicks to *push down the head*—by Dr. Wright to *push up the breech.*

The language of Dr. Hicks is: "Now, the distinctive point of the plan I have introduced was just this, that *both hands are used together.*" Are not both hands used in "Dr. Wright's Method?" The turning cannot be speedily and skillfully performed without it.

Every experienced practitioner will testify that, at best, turning is not a desirable task. In nearly all the cases in which the liquor amnii escapes early, an adequate degree of force is to be skillfully applied internally as well as externally. May I not ask, by which process can we secure most efficient aid in directing the

movements of the fœtus, the introduction of "one or two fingers down to the os," or by applying nearly the full power of the hand against the shoulder?

Is it still a question of interest to know who first presented his views on "Combined External and Internal Version" in shoulder presentations? If so, I may refer to the fact, that my experience on the utility of combined version dates as early as 1847, and my lectures on the subject occurred soon afterwards. A case was published in the *Lancet* in 1850, and other cases in 1851. My essay containing a description of the process, was published in 1854. In 1860 Dr. Hicks for the first time presented his views to the profession. Will Dr. Hicks strike the difference and show us how he reverses time? The profession have now an opportunity of testing the comparative value of two methods of rectifying shoulder presentations. And it seems to me that the two disputants may rest their exultation upon the good they may have secured to the sufferer, without claiming special praise for ingenuity or skill.

Very truly yours,

M. B. WRIGHT.

THE PATHOLOGICAL ANATOMY OF THE FALLOPIAN TUBES.*

BY JULIUS M. KLOB, M.D.,
Professor in the University of Vienna.

STRICTURE AND OCCLUSION.

STRICTURES and occlusions of the Fallopian tubes are either *congenital* or *accidental.* The congenital must be attributed to such arrests of development as occur during that very early period of fœtal life when Müller's filaments are still imperforate. Such strictures and occlusions occur either within the middle portions of the tubes, or, as in many instances, throughout their entire length. In some very rare instances we meet with congenital occlusion of the uterine orifice of a Fallopian tube, the canal of which is perfectly permeable throughout the rest of its course, and still more rarely, absence of the abdominal orifice and fimbriated extremity.

The accidental strictures or occlusions of the Fallopian tubes may be either *partial* or *complete.* The former are the most frequent, and affect either the uterine or abdominal extremities, or sometimes occur in the middle portions. Accidental occlusion may take place at the uterine orifice from a proliferation of the uterine mucous membrane. The partial casting off of the latter after each delivery, and its subsequent re-de

* Translated from his work, in German, on the Pathological Anatomy of the Female Sexual Organs. By Joseph Kammerer, M.D., Prof. of Diseases of Women in the University of New York, and B. F. Dawson, M.D.

velopment may occasion such occlusion. Placental attachment in the immediate vicinity of the uterine orifice seems to me to be of still greater importance in the explanation of such cases.

In the so-called interstitial or uterine portion of the Fallopian tube, stricture may be produced by an intumescence of the surrounding uterine tissue, especially from adventitious growths (fibrous tumors). Not unfrequently we find the canal of the tube exceedingly tortuous in this latter portion, and upon a careful external examination we will notice either irregular tumefaction of that portion of the uterus or numerous prominences. Upon more thorough examination we will find that the irregular tumefaction is due to the tortuous condition of the so-called interstitial portion of the Fallopian tube. Such an anomaly is generally bilateral, confirming, therefore, the presumption that we are dealing with a congenital anomaly, or at least with one that originated during the puerperal state; it appears as if, in the fœtal state, Müller's duct had been twisted and bent in numerous directions. My attention was called to this latter anomaly by Rokitansky. The walls of one tube may also be considerably thickened by hyperplasia of its muscular coat, and thus its canal be more or less contracted.

Ulcerative affections of the Fallopian tubes are exceedingly rare, consequently strictures from contracting cicatrices are rarely observed. If a tube has been drawn down and fastened by false membranes upon either surfaces of the broad ligament, then, besides being bent at its uterine portion, it will also be partially

twisted, and in consequence the permeability of its canal will be considerably impaired.

Impermeability of the Fallopian tubes from traction occurs in various degrees, and may occur in any portion of their course. Rarely does traction cause complete obliteration; it is generally partial, and chiefly affects the middle portion.

Occlusion of the abdominal orifices of the tubes is the most frequent of the accidental atresiæ, and arises either from tubal catarrh involving the peritoneum, or from peri-uterine oophoritis or pelvic peritonitis. When the abdominal orifices are occluded the fimbriæ are generally found rolled inwardly towards the canal of the tube, their peritoneal surfaces being adherent. Thus the extremity of the tube assumes a funnel-shaped appearance. It is possible that the inversion of the extremities of the tubes is in many cases the primary lesion arising from abnormal contraction of the tubes, the adhesion occurring later. At least this explanation is possible in all those cases exhibiting no trace of any other anomaly of the peritoneum beyond this adhe sion.

In old women we sometimes find more extensive impermeability of the canal of the tubes, which must be attributed to senile atrophy.

The *consequences of strictures and occlusions* of the Fallopian tubes vary accordingly as the anomaly affects either the entire tube or only limited portions.

Strictures due to flexions of the tubes may either wholly hinder the reception of the ovum, or arrest the latter in its passage to the uterus, and thus give rise to

tubal pregnancy. The same may occur in occlusions of the interstitial portion of the tubes, in which case we have the occurrence of so-called interstitial pregnancy. Partial occlusions of the uterine orifices may also lead to similar results, the possibility of the passage of the spermatozoa through the opposite tube to the ovary of the affected side being at present conceded as undoubted.

Complete impermeability of both tubes of course removes the possibility of conception.

Kiwisch and Förster mention the occurrence of occlusions of the tubes from thick and viscid mucus. I have never observed such a condition. Partial occlusions of the abdominal orifices may give rise to distention of the tubes from accumulated secretion.

DISTENTION OF THE FALLOPIAN TUBES WITH MUCUS OR SERUM: HYDROPS TUBARUM.

Distention of the Fallopian tubes is generally the consequence of catarrhal inflammation of their mucous lining extending to the peritoneum of their fimbriated extremities, and giving rise to the adhesion of the latter in the manner already described. If at the same time their uterine orifices be partially or wholly occluded by tumefaction of the uterine mucous membrane, an accumulation of the secretion, and a corresponding distention of the tubes will be apt to ensue, the mucous membrane being in a condition of hypersecretion, and the muscular walls in a state of inflammatory paralysis. However, distention will occur without inflammatory hypersecretion if the abdominal and uterine orifices are

closed, and the mucous membrane continues to secrete its normal mucus, its secretion in such cases having no escape.

According to the location of the stricture or occlusion, either the entire canal of the Fallopian tube may be distended, or only its extremity. The more frequent distention of the latter portion is to be attributed to its larger calibre, and perhaps also to the fact of the slighter development of the muscular wall of this portion.

The natural attachments of the Fallopian tubes and their relations to the peritoneum will explain the alterations of the form of tubes thus affected. If the entire canal of a tube is distended, its course will be acutely tortuous and twisting, which latter, however, considering the limited elasticity of the peritoneum of the tube, must readily give rise to flexions. Above the points of flexion the tube distends into one or more sacs, thus producing, in highly developed cases, cyst-like cavities separated from each other by the intervening walls, which latter are composed of the duplications of the tubal wall. The recorded cases of alveolar tubal sacs must be explained in this manner. If only the outer third of the tubal canal has been distended, an oblong sac is formed which depends either anteriorly or posteriorly, unless it has been otherwise displaced by false membranes.

Very rarely the distention is limited to the uterine half of the tube, in which case it is never very considerable. Distention of the tubes is sometimes enormous, and I have seen cases in which the sacs attained

the size of a child's head. Although we cannot deny but that in isolated cases distention may be still more excessive, still, if we consider the statements of other writers, it is evident that ovarian cysts have been mistaken for tubal dropsies. Thus Muniker mentions having found 110 lbs. of fluid in a tubal dropsy; Murat, 112 lbs. (the walls of the sac being the thickness of the finger), Harden, 140 lbs., and Cyprianus, 150 lbs.

The walls of the Fallopian tubes undergo various changes from distention, chiefly atrophy of their muscular walls. I have often searched in vain for muscular fibres; even in the flexed portions or folds between the distentions they were also absent. The mucous membrane also degenerates into a thin *serous membrane*, which in marked cases is covered with a single layer of pavement epithelium. Thus the polymorphous striated cylindrical epithelium of the tubes has been metamorphosed in a manner similarly observed in the excretory ducts of other organs. On opening the outer or abdominal extremity of a distended tube we will sometimes find the fimbriæ projecting like small cauliflower excrescences into the distended cavity of the tube. In some cases also we meet with papillary excrescences of connective tissue from portions of the mucous membrane (Rokitansky).

Rokitansky has made the interesting observation that in rare cases the lining membrane of a tubal sac is transformed into osteoid scales. I have only once met with such a case, in which there were several groups of yellowish, scaly, ossified particles.

In excessive distention of the Fallopian tubes, distinct

separations are found between the different distentions, which are either caused by pseudo-membranous adhesions, or are due, as I presume, to the fact that such portions of the tubal walls resisted the distention.

Scanzoni mentions that he has observed cases in which from five to six occlusions were found in one tube, which, consequently, was distended into several large and small sacs. I have met with no such case, and it may be supposed that deep indentations separating cavities apparently distinct from each other, may have been considered occlusions, although it is impossible to deny the possibility of such an occurrence.

As regards the *contents of such tubal sacs*, they generally consist of a clear yellowish limpid serum, and even in the larger sacs it is rare to find other contents. In many cases, crystals of cholesterine are found in large quantities. In the slighter degrees, however, the contents are brownish, or a greenish brown, or ink black color, from the admixture of blood, and at the same time thick and ropy. The source of the hemorrhage is from the blood-vessels of the tube, which, however, in extreme cases of distention are also atrophied. The circumstance that in dropsy of the tubes, almost without exception, only metamorphosed blood is found, points to an occurrence of the hemorrhage at an early period of the disease. It is only in aged females that we frequently meet with chocolate-colored contents, coincident with considerable rigidity of the arteries.

Froreip distinguishes two forms of tubal dropsy—dropsy in which both the abdominal and uterine orifices are closed, and dropsy in which the uterine orifice

is permeable. I am quite convinced that the uterine orifice need not be occluded to produce tubal dropsy, and that after the fluid is subjected to a certain amount of pressure a slight cause may make the contents of the sac flow into the uterine cavity. This condition has been termed *profluent dropsy of the tube.* Kiwisch did not consider such cases published before him as authentic, and Förster likewise expresses a distrust in older observations. But Rokitansky considers this process undoubted, and Scanzoni describes a case in which the right tube was dropsical to the size of a goose's egg, and the left forming a loose sac the size of a hen's egg, containing a few drachms of sanguineous fluid, and connecting with the uterine cavity by a canal about 1½ inch long, and 6 lines in width. I have repeatedly found similar conditions in aged females, and in every case the contents of the distended tube were mixed with blood. I presume the hemorrhage originated in the following manner: After evacuation of the sac, and the excessive pressure of the walls being suddenly removed, hyperæmia of the blood-vessels occurred in consequence of diminished resistance, followed by rupture and hemorrhage from rigidity of the vessels.

From these conditions it is evident that in many cases evacuation of the sanguineous contents of the tubal sacs may occur periodically, and I am inclined to consider statements of menstruation occurring in later years, after a long cessation, as profluent dropsy of the tube. Thus Heyfelder relates a case in which menstruation reoccurred in a woman aged 78 years, after a cessation of 26 years. Braun observed its occurrence, after

20 years' cessation, in a woman aged 71 years. (*Würtemburg Med. Correspond. Bl.* 1855, Bd. iv.) But the most remarkable case is that mentioned by Robt. Semple, in which a woman aged 80 years, after a cessation of 40 years, again menstruated regularly during 3 years. (*London Med. Gazette*, vol. iii., Jan. 1835.)

The Fallopian tubes may also be distended by an accumulation of blood and pus. In the latter manner, what have improperly been called tubal abscesses have been produced. Of both the above conditions we shall treat hereafter.

Tubal dropsy is frequently bilateral, often developed to the same extent and with similar disposition of the sacs. The latter are generally turned backwards, behind the broad ligament, having sunk into Douglas's sac, and placed one above the other; sometimes one is impacted into the space mentioned, which is consequently deepened. More rarely we find the distended tubes rising from the pelvic cavity, forming large tumors at the pelvic brim. Generally, and almost without exception, false membranes are found extending from various points of the pelvic peritoneum, aud causing manifold alterations of position and form of the distended tubes.

The *consequences of tubal dropsy* are those of simple occlusion. When large sacs are formed they may occasion inversion of the vagina and displacement of the uterus.

Here I may mention Guerin's remark that in vaginal injections air may penetrate through uterus and Fallopian tubes into the peritoneal cavity, which is confirmed by the case of Guillier. (*Gaz. Med.*, 1857, p. 13.)

NATURAL AND ARTIFICIAL DILATATION OF THE OS UTERI IN PARTURITION, EITHER PREMATURE OR AT TERM.

BY ALEXANDER J. C. SKENE, M.D.,

Professor of Gynæcology and Clinical Obstetrics in the Long Island College Hospital, Brooklyn, N. Y.

IN times past, writers and teachers so vied with each other in their denunciations of "meddlesome midwifery," that the practitioner hardly dared to interfere with the process of parturition until all hope of natural delivery had been abandoned. No matter how tedious and painful the labor, or how little the prospect of speedy delivery, the physician was advised to wait until "Nature had exhausted all her resources." This rule of practice, so strongly insisted upon, has doubtless had its uses. It naturally grew out of the want of knowledge of any artificial means whereby natural labor could be safely aided; and possibly, also, from the dogmatic statement, so often reiterated, that "meddling" with what is, or ought to be, a "natural function," always involves more or less danger.

Now I am free to confess that we should not disturb those time-honored maxims and rules of practice unless we are quite sure we have something to offer, in their stead, that promises greater security to both mother and child.

In the progress of discovery and opinion, valuable

resources have been added to our means of assisting labor; so that at the present time the obstetrician is taught to wait only so long as labor progresses naturally and with reasonable speed. Any deviation from ordinary natural labor, which is likely to jeopardize the life of mother or child, or protract the suffering of the mother, without reference even to the question of danger, should be promptly met, so far as the resources of the obstetrician enable him to do so.

The acceptance of these views, in more modern times, has led to the discovery of new means for the purpose of overcoming the difficulties and dangers of child-bearing. The resources of our art are specially rich in the department of "operative obstetrics:"—and that great gain, in the way of relieving suffering and avoiding death, has resulted from these improvements, there can be no doubt. What well-informed obstetrician of the present day, for instance, would think of waiting for six hours, or more, after the head had descended to the floor of the pelvis, before using the forceps? Or who would delay forty-eight hours, or more, for the os to dilate, while the patient, in the mean time, was suffering the most distressing pain?

It is for the purpose of overcoming the latter difficulty—one of the most important elements in the first stage of labor—that I submit some points regarding the *process of dilatation* of the os.

The cause of natural dilatation of the os uteri is contraction of the longitudinal muscular fibres, which, by making traction on the os, has more or less influence in producing dilatation sufficient to admit the bag of waters.

The most important agent, however, in directly effecting dilatation, is the bag of waters, which dilates the os either fully, or to the extent of two and one half to three inches, before the membranes rupture.

When the bag of waters has accomplished its useful purpose, the head of the child engages in the os, and thus completes the process.

This, briefly stated, includes the various steps in the *first stage* of labor, *i.e.*, when the several stages follow in normal order of succession.

There are, however, many circumstances which may conspire to retard the progress, and thereby prolong the labor, as well as add greatly to the patient's suffering.

Prominent among the causes of delayed labor may be mentioned *irregular muscular action.* A rigid, unyielding condition of the os itself, is undoubtedly one of the most important causes of delayed dilatation. All the conditions may be favorable to dilatation; but the parts simply do not yield.

Again, premature rupture of the membranes may occur, and we lose thereby the most important agent in dilatation. Or a tense condition of the membranes may prevent their bulging down into the os, and forming the wedge known as the "bag of waters." In such cases the membranes appear to the touch as if they were stretched across the os uteri, but do not engage in it: or, what is not unfrequently the case, the head of the child may lie close down over the os, so as to prevent the liquor amnii from forcing down the membranes into the os.

In such cases the liquor amnii is usually scanty.

Another cause which prevents the completion of dilatation, in some cases, is obstruction to the head of the child in settling down into the pelvis. The membranes dilate the os sufficiently, perhaps, to admit a segment of the fœtal head, or breech; but the child remains high up, and hence dilatation is delayed.

It is hardly necessary to state, in this connection, that patients suffer long and severely, and the physician loses both time and patience waiting in all such cases of slow dilatation; and I risk nothing in the further statement, that very much of this time can be saved, and suffering alleviated, by the judicious exercise of the "obstetric art." And it may be fairly claimed that, in our own time, we are far more prompt to relieve such cases than were the obstetricians even a decade of years ago. And I am far from believing that the resources of our art, in this direction, are fully exhausted. On the contrary, I am satisfied that the means for the relief of retarded dilatation of the os uteri may be safely employed to an extent altogether greater than is the general practice of the present time.

The reason why we do not employ artificial dilatation more frequently is doubtless due, in part at least, to the difficulties attending the manipulations. The two principal methods of dilating at present are by the finger, and by what is known as "Barnes' dilators." The first, or manual dilatation, is quite limited in its application; for the reason that little can be accomplished until the os has dilated sufficiently to admit at least two fingers; and even the pressure which

can then be made is irregular and inefficient, from the fact that it takes longer, as a rule, to effect dilatation, to the extent sufficient to admit the two fingers, than to complete the process afterwards.

Manual dilatation is rarely called for;—indeed it ought to be limited to but two conditions.

First,—When there is urgent necessity for rapid delivery; and,

Second,—When the os has begun to dilate and is quite dilatable.

The hand can then be introduced into the vagina, and the fingers carefully wedged into the os. This method answers well when version is called for in haste.

Again, when the os is considerably dilated, the membranes ruptured, and a segment of the head or breech engaged in the os, traction can be made on the anterior or pressure on the posterior lip of the os, according to circumstances. This will often facilitate the completion of dilatation.

The most important agent for artificial dilatation however is the "hydrostatic dilator." The rubber bag filled with water, as used by Dr. Barnes, is undoubtedly the safest and surest means at our command for the purpose in question.

There are, however, some objections to the practical working of "Barnes' dilators," to which I desire to call attention.

It has been observed, for instance, that the greatest delay occurs, as a rule, at the *commencement* of dilatation, while the opening is still so small that a dilator cannot be easily introduced. Owing to the size and

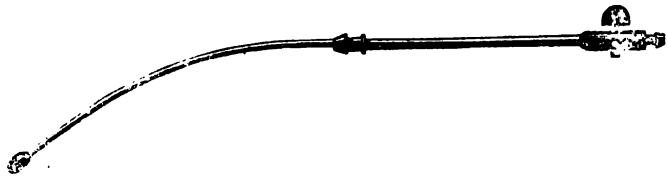
shape of Barnes' dilator, I have found it exceedingly difficult to introduce it until the os was dilated at least an inch, or an inch and a half. Before this—when the greatest *demand* for a dilator exists—the Barnes' dilator cannot be used with ease. The principal objection to its use, at this stage, is the pocket on the outside of the bag. If it is made of thick rubber, it takes up too much room; and if it is thin, the uterine sound, used to guide the dilator into place, will tear through it.

The introduction of the dilator in ordinary use is difficult, even under the most favorable circumstances, and, when introduced, it is difficult to keep the instrument in place. Moreover, when the uterus contracts, the bag is very liable to be pushed out into the vagina; and if, to guard against this, the dilator is carried well up, it frequently slips entirely into the uterus. The latter accident is likely to do damage by displacing the head or presenting part. In short, the dilator is troublesome to introduce, and difficult to keep in place when introduced.

In order to make the dilator more easily manipulated, and thereby remove an important objection to its use, I recently devised a plan for introducing the bag, and retaining it in place, which answers all practical purposes. It is simple, easy of use, and will, I think, commend itself to my professional brethren. It consists of a hard rubber tube, about ten inches long, terminating in a bulb or knob at one end, having a stop-cock at the other, and a curve to correspond with the axis of the pelvic excavation. The tube (which is all that is re-

quired in addition to the original dilators) is well represented in the accompanying figure.

Fig. 1.



It is about the size of a No. 9 catheter, and is slightly flexible. This tube is carried into the rubber bag, and answers three important purposes.

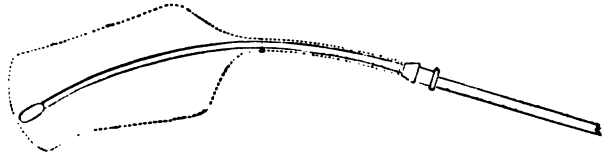
First,—It guides the introduction of the bag.

Second,—holds it in place within the os uteri, and

Third,—makes a convenient connection with the syringe used to fill the bag with water.

Figure 2 shows the tube when introduced into the bag and ready for use. The dotted line shows the outline of the bag.

Fig. 2.

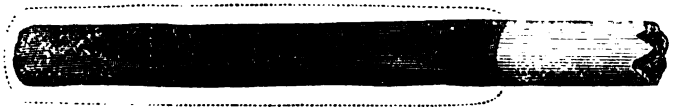


By this arrangement much smaller-sized dilators can be used than those of Barnes: indeed, there are several sizes much smaller than the pocket on the outside of his instrument.

Figure 3 shows the smallest dilator, full size.

These small dilators answer a most admirable purpose in the induction of premature parturition, and may be employed in place of the sponge tent, which was used by the late Professor George T. Elliot, and others.

Fig. 3.



I will be pardoned for briefly restating, in this connection, the conditions requiring artificial dilatation:—

1st. When it is necessary to induce premature parturition at any period of pregnancy.

2d. When labor pain continues for a long time, so as to tire the patient before the os begins to dilate perceptibly.

3d. When the membranes rupture before the os is dilated sufficiently to permit the presenting portion of the child to engage in it.

4th. In cases where the membranes stretch across the os, but do not project into it, either from the condition of the membranes, or of the low position of the child's head.

5th. When the membranes dilate the os sufficiently to admit the head or breech of the child, but, from some cause, the presenting part does not descend to complete dilatation.

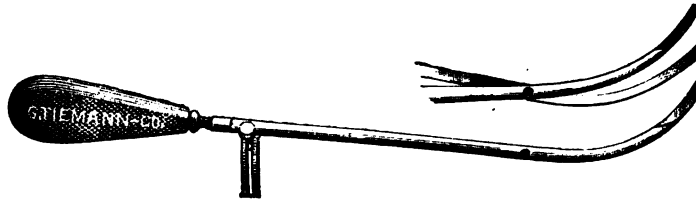
Artificial dilatation is required in such cases to facilitate the manual or instrumental delivery, which is generally necessary.

6th. When the os is rigid, and does not yield to the natural causes of dilatation.

In such cases artificial dilatation is occasionally difficult. When the parts do not yield readily to the hydrostatic dilator, we are advised to incise the os at several points:—For this purpose I use a knife which I devised for a uterine scarificator. Its shape is like an ordinary uterine sound, divided longitudinally into two equal parts, one of which is probe-pointed and fixed into the handle; the other,—a little shorter,—is made at the end like a pointed bistoury. The two halves are held together, like the blades of a scissors, by a button, and, when the blades are closed, it looks exactly like a uterine sound or probe.

Figure 4 is a good illustration of this instrument.

Fig. 4.



When the blades are closed, it can be easily introduced into the cervix uteri, and, by pressing in the end of the cutting blades, its sharp point is thrown forward for the purpose of making the necessary incisions.

The rigid os can be, by this instrument, incised with convenience and safety. There is no danger of wounding the parts while introducing or removing the knife, and the cutting blade, being under complete control, the incisions can be made to any depth desired.

TRANSACTIONS OF THE NEW YORK OBSTETRICAL SOCIETY.

REPORTED BY CHARLES S. WARD, M.D., SECRETARY.

STATED MEETING OF DEC. 24, 1872. DR. JAMES L. BROWN, PRESIDENT, IN THE CHAIR.

CONDITION OF CERVIX UTERI IN CANCROIDAL DISEASE.

DR. CHAMBERLAIN related the following case of epithelioma: The patient, a young lady, was under treatment last summer in London, for reputed ulceration of the cervix uteri, from which she soon recovered, and then continued her tour on the Continent. On her return to this city she had the rational signs of malignant disease. Physical examination discovered a villous mass on the anterior lip of the uterus, which extended upward in the cervical canal. The application of the acid nitrate of mercury caused the external mass to disappear, and the surface healed. The cervix was then dilated, and one or two applications of the acid nitrate made to the mass in the cervix, after which the mono-chlo acetic acid was applied two or three times at intervals of a week. A considerable slough followed, and no further trace of the cancroidal growth is now to be detected. As it is impossible to pass a probe through the interval os, Dr. Chamberlain thinks that adhesion of the cervical walls at that point has resulted.

In reply to a question by the President as to how far up the cervical canal the cancroidal mass extended, Dr. C. stated about three-quarters of an inch.

DR. BROWN said, supposing the case to be epithelioma, the question is, whether it would be wise to delay, in a case where the disease has gone so far. It would be better, in his opinion, to amputate the cervix.

DR. CHAMBERLAIN asked the experience of members as to how often the infra-vaginal portion of the cervix is absorbed before any ulcerative process has occurred in malignant disease.

DR. BROWN remarked that where the cervix is destroyed or

absorbed, it is true cancer, while in epithelioma there is a great proliferation.

ABDOMINAL ABSCESS OCCURRING AFTER OVARIOTOMY.

Dr. Janvrin related the following case: Last July he assisted Dr. Peaslee in an ovariotomy at Patterson, N. J. The tumor was of the left ovary, and there were many adhesions. The right ovary contained some small cysts which were simply punctured. During the first three days after the removal of the tumor, a tent was left in the lower angle of the wound to insure drainage. Three weeks after the operation the patient was able to be up. Five weeks ago (being a little over four months from time of operation), the patient became chilled from exposure, and was taken with pain in the left iliac region; during the following week she had repeated chills, and nine days after the attack she discovered a tumor, and sent for her physician, who requested Dr. Janvrin to see her. Abdominal palpation readily detected a tumor three or four times as large as the fist. On vaginal examination the uterus was found high up and fixed from a local peritonitis which occurred at the lower angle of the wound at the time of operation, but no tumor could be reached. Quinine, fomentations, and vaginal douches were ordered, and, on Saturday last, an abscess pointed at the lower angle of the wound, which was opened by her physician, Dr. Terryberry; from this was discharged from one pint to a pint and a half of pus. Dr. Janvrin remarked that he thought the abscess might have been occasioned by irritation from one of the ligatures of the pedicle, and stated that Dr. Emmet once had a case of abscess occurring eight months after an ovariotomy.

Dr. Brown doubted if the operation influenced the abscess. This must have been an iliac or abdominal abscess; had it originated in the broad ligament where the ligatures were it could have been touched per vaginam. It might have been an encysted peritonitis.

OVARIOTOMY.

Dr. Peaslee reported the following cases of ovariotomy: 1st case, interesting especially on account of difficulty in arresting hemorrhage. This tumor was of the obligocystic variety, and had twice burst spontaneously during a period of two years. After making the abdominal section, the tumor was found adherent everywhere except at the top, and posteriorly above the pelvis. The tumor was enucleated. Hemorrhage from a vein in the pelvis was the point of special interest; the vein was so

situated that it could not be ligated, the hemorrhage was controlled by pressure with a sponge until ready to close the abdominal incision, when the intestines were crowded down in place of the sponge, and their pressure augmented by an external compress after the closure of the wound. The subsulphate of iron was not employed, as it has occasioned peritonitis. There were no cautery irons at hand, and it is doubtful if he could have used them. After the operation the patient was pulseless at the wrist, though she was perfectly conscious and spoke. Injections of brandy, with fifteen drops of tincture of cantharides, were given every hour as a stimulant. The patient died from shock thirty-four hours after the operation. At the autopsy two ounces of blood were found in the pelvis. Dr. Peaslee once had a case in which hemorrhage from a vessel which he could not ligate continued for ten days, necessitating the daily use of abdominal injections to wash out the cavity.

In this connection Dr. Peaslee exhibited a modification of his needle, which consists in giving it a right and left curve or twist, and having a joint in the shaft so that it may be introduced at almost any angle.

The second case related by Dr. Peaslee was interesting, as showing how a cyst partially emptied itself after minute puncture. The tumor was a small one and did not reach above the umbilicus, but as the patient's strength was rapidly failing he decided to operate. Two days previous to the operation, he withdrew, by means of the hypodermic syringe, a small quantity of fluid which appeared like that from a cyst of the broad ligament, but it coagulated by heat, and was thus readily differentiated from that condition. The fluid was so limpid that it continued to flow out of the cyst into the peritoneal cavity, so that when the patient was seen by Drs. Thomas and Emmet resonance was found over the tumor which was difficult to determine. At the operation the cyst was found partially collapsed, and lying in the fluid which had oozed out into the abdominal cavity, and could be seen still oozing from the puncture made by the hypodermic syringe.

ATTEMPTED CRIMINAL ABORTION WITH A LONG WIRE—PENETRATION OF RIGHT LUNG—DEATH.

Dr. Thomas related the following case: A short time ago, he was called to see a woman, the wife of a man claiming to be a physician. She had had two children, and as she had suffered greatly during each gestation, she determined never to have another child. Owing to a deferred menstruation, she

believed herself six weeks pregnant; and, acting upon her former determination, she appealed to her husband for an instrument with which to procure an abortion upon herself; he acceded to her request, and gave her a wire. Having retired to her room she passed one end of the wire into the vagina, and then steadily pushed upward until the whole wire was within the passage; with her finger upon the lower end, she followed the wire high up until suddenly it escaped from her reach; her husband was then called in, who made fruitless efforts to reach and extract the instrument. The next morning Dr. Thomas was requested to see the woman, from whom he obtained the foregoing history. Dr. Thomas found her in bed, and complaining of acute pain in the right hypochondriac region, which was greatly aggravated on attempting to rise to a sitting posture. She would give no definite information in regard to the length of the wire, but stated, in a general way, that it was perhaps as long as a knitting needle. At first Dr. Thomas believed that this was either an attempt of the woman to get him, through some manipulation in investigating her case, to produce an abortion; or else, that a criminal attempt had already been made and they now sought to throw the responsibility upon him. On examination, however, he found an opening at the left of the uterus through the pelvic roof large enough to pass a sound; after diligent search by the finger, a sound was passed through the opening found, and swept around in every direction without encountering any foreign obstruction. Believing that the wire had not been lost in the peritoneal cavity, but that it had escaped and fallen to the floor, Dr. T. had careful search made about the room, but without success. The symptoms complained of now attracted the doctor's attention; pain in the right side, at the base of the lung posteriorly, where a local pleuritis was discovered; this pain began immediately after the introduction of the wire, and was augmented on attempting to rise to the sitting posture. The coincidence was certainly suggestive, and Dr. Thomas was decided in his conviction that the wire had penetrated to the lung. So confident was Dr. T. in his reading of the case, that, two days after, he called a consultation with a view to perform gastrotomy; but, as the symptoms were somewhat mitigated, and the objection of the patient's friends so strong, he determined to defer the operation. Dr. Thomas now left the city to spend the holidays, placing the patient under the care of Dr. Chas. S. Ward, with instructions to perform gastrotomy should the symptoms at any time warrant such a procedure. When seen the next day by Dr. Ward, pneumonia of the right lower lobe existed, as well as a marked

extension of the pleuritis, which soon became general. Her pulse was now from 110 to 120, and her temperature ranged from 102° to 104°. Sixteen days after the introduction of the wire, during a paroxysm of coughing, she suddenly expectorated about a teacupful of pus, and on the following day she died. During all this time, there was no tympanites, abdominal tenderness, or other symptoms of peritonitis; this, together with the very grave pulmonary and pleural trouble, prevented Dr. Ward from resorting to gastrotomy. An autopsy was made twelve hours after death, discovering the situation of the wire, as follows: it was for the most part posterior to the peritoneum, having, after piercing the pelvic roof, passed through the peritoneum at the left sacro-iliac synchrondrosis, where the lower end was found resting; the wire then ran up, posterior to the peritoneum, obliquely across the spine, and entered the peritoneal cavity on a level with the edge of the liver; then immediately passing again posterior to the peritoneum, it passed through the diaphragm and penetrated for the distance of two inches into the base of the right lung, where an abscess was found to exist. The wire measured seventeen and a half inches in length.

TRANSACTIONS OF THE PHILADELPHIA OBSTETRICAL SOCIETY.

REPORTED BY JAMES V. INGHAM, M.D., SECRETARY.

STATED MEETING, JAN. 2, 1873. DR. WM. GOODELL, PRESIDENT, IN THE CHAIR.

DR. WM. G. PORTER exhibited an aborted ovum. Menstruation had continued after conception, and the embryo was expelled immediately after the second menstruation.

DR. W. F. JENKS exhibited an ovum expelled in the 4th month of gestation. It presented the peculiarity of apparently having no placenta, although he supposed that the placenta was expelled afterwards while the woman was at stool, but was not closely looked for by the medical attendant. The cord protruded through the unruptured membranes about one inch, and termi-

nated in a pointed extremity. The membranes were smooth and did not present any evidence of having been attached to a placenta.

Dr. J. V. Ingham presented a specimen of large fibroid tumor of the right ovary, with the following history:

T. P., married; aged 29; the mother of five children. The last two were born at the 7th month. Up to the birth of the last child, 5 years ago, she was in comparatively good health, but from that time her health failed. Nothing definite, however (owing to a very feeble intellect), could be learned concerning her condition, except that she was miserable and had abdominal pains. Two years ago she had some fresh pelvic trouble, but could only say that she suffered great pain. This never entirely left her. At this time the menses disappeared and never returned. Last July she first noticed a tumor, about the size of an orange, appearing above the pubis; it was movable but not very painful. This she insists entirely disappeared, and with its disappearance her abdomen rapidly enlarged. On the first of November, 1873, she was admitted to the medical wards of the Philadelphia Hospital for ascites, and 10 days later she was tapped, and 14 quarts of a clear pale straw colored fluid were evacuated. After the operation the existence of a large pelvic tumor was recognized, and she was transferred to the ward for the Diseases of Women and came under the care of Dr. Ingham. After obtaining the above very imperfect history, he made a careful examination and found a hard non-fluctuating and immovable tumor reaching about three inches above the pubes in the median line. It occupied the entire right upper part of the pelvic cavity, and extended far into the left side. The uterus was apparently situated anteriorly to the tumor, but as every attempt to pass the sound gave much pain (it was not deemed advisable to administer an anæsthetic), this could not be positively determined, nor could the cavity of the uterus be measured. The abdomen rapidly filled up with fluid, and two weeks after the first tapping she was again tapped and 10 quarts of fluid obtained. It was like the first, clear, of a pale straw color, was alkaline, had a sp. g. of 1016. and became almost solid with albumen when tested by heat and nitric acid, but when allowed to stand for 24 hours there was no precipitate. 12 days later tapping was again resorted to, but only as a palliative measure, for she was rapidly sinking from dyspnœa and exhaustion. This time 12 quarts were drawn off. After the operation the dyspnœa was relieved and she rallied for a few hours, but toon relapsed, and died four days later with many symptoms of peritonitis.

On opening the abdomen the intestines were covered with a recent exudation of lymph, and were displaced by the tumor which extended about four inches above the superior strait. The heart, liver, and kidneys had undergone extensive fatty degeneration. The pelvic tumor so closely occupied the superior strait that it was with great difficulty that a knife was passed far enough to extract the entire pelvic organs. The uterus was healthy and of a normal size. The left ovary was the seat of a small cyst about the size of a marble. The right ovary had disappeared, and its place was occupied by a fibroid tumor, slightly larger than a fœtal head at term. This tumor did not involve the walls of the uterus, but was connected to it so closely by firm adhesions that at first sight it was difficult to decide whether it was ovarian or uterine in its origin. A closer examination, however, revealed the fact that it was ovarian.

The specimen was then exhibited, after which Dr. Ingham spoke of the great difficulty in making a diagnosis of such tumors. Even had the sound been passed, and the cavity of the uterus measured, the close connection between the tumor and the uterus would have rendered such examination of but little value, as any movement of the sound would have been communicated to the tumor and *vice versâ*. He did not believe that the presence of the tumor had caused her death, but that she had died from the extensive fatty degeneration that existed in the other organs.

Dr. J. L. Ludlow spoke highly of the value of tapping in these cases, although he fully recognized the fact that it was only a palliative measure.

Dr. Duer, who had seen the patient with Dr. Ingham, spoke of the uselessness of the sound in these cases, and the utter impossibility of making a diagnosis either with or without it.

Dr. W. F. Jenks then exhibited a specimen of fibroma of the corpus luteum. The tumor was about the size of a cherry, projecting from the surface of the ovary, of a pale yellowish tint, somewhat nodulated, elastic, and inclosed in a distinct capsule. On section a small central cavity was found, surrounded by a dense white fibrous tissue, thrown into folds or wrinkles, in the immediate periphery of the central cavity. In one circumscribed spot this fibrous layer had undergone calcification. On microscopical examination it was found to consist of delicate thin connective tissue cells closely packed together, interspersed towards the centre of the growth with hæmatin and hæmatoidine crystals. Two growths of this sort are described by Rokitansky, and one by Klob, but in all of the cases the tumor was larger than the one under consideration.

The President, Dr. Wm. Goodell, then delivered his annual address,* after which the Society elected the following officers for 1873: *President*, Dr. Wm. Goodell; *Vice Presidents*, Drs. J. L. Ludlow and J. S. Parry; *Secretary*, Dr. J. V. Ingham; *Treasurer*, Dr. D. Murray Cheston; *Curator*, Dr. W. F. Jenks; *Council*, Drs. A. H. Smith, L. D. Harlow, R. P. Harris and J. F. Wilson; *Publication Committee*, Drs. Wm. Goodell, W. F. Jenks, J. H. Packard and R. G. Curtin.

STATED MEETING, FEB. 6, 1873. DR. WM. GOODELL, PRESIDENT, IN THE CHAIR.

Dr. C. A. McCall exhibited a blighted ovum, apparently in the 3rd month, and stated that on the evening of the 14th of January, 1873, he was called to see Mrs. R., and found her in labor, in which condition she had been for 16 hours. The child was presenting by the feet. With some difficulty a medium sized female child was delivered; it was asphyxiated, but, after working with it for half an hour, it breathed. On removing the placenta and membranes the accompanying specimen came with them. It is apparently another fœtus, about three months old and flattened by pressure. The mother had been in excellent health during her pregnancy, and was unconscious of anything unusual having occurred during that time to which the death of this embryo can be attributed. She had never carried a child to term before, having had two miscarriages—one at 6 months, the other at 3 months.

Dr. J. V. Ingham stated that, through the kindness of Dr. McCall, he had had an opportunity of making a careful examination of this very interesting specimen. It was undoubtedly a flattened fœtus, as the outlines of the face and body were distinctly visible; it was also easy to trace out both arms and hands and the legs, as far as the knees. He had taken the liberty of announcing it in the notices of the meeting, as the product of a twin conception, although Dr. J. Matthews Duncan, of Edinburgh, asserts that up to the 3rd month superfœtation can occur, for before that time the membrana decidua reflexa and the membrana decidua vera are not in close contact, and the passage of either an ovule or a spermatozoon is a possibility.

He (Dr. Ingham) believed that in this case the life of the embryo had been destroyed, perhaps, as is stated by Sir J. T. Simpson, by a deficiency of the liquor amnii, and it had been retained until term.

Dr. A. H. Smith believed that it was the product of a twin

* Pub. in No. IV., Vol. V., Feb., 1873, of this Journal.

conception. He had seen several cases in which the development of one fœtus had been arrested generally by hemorrhage, the other going on to full development, the two being expelled together.

Dr. I. L. Ludlow had also seen a similar case, in which a five weeks embryo had been expelled at term with a fully developed child.

Dr. Goodell asked Dr. Smith whether the twins in each of his two cases were of the same sex?

Dr. Smith replied that he believed that the twins in both cases were of the same sex.

Dr. Goodell remarked that he had asked this question, because Hyrtl had discovered a vascular communication between the placentæ of twins of the same sex, but none between those of different sexes. That this anastomosis holds good also in triplets of the same sex. If, however, one of these is of a different sex from its fellows, its placental vessels will be independent, while those of the other two will anastomose. It had struck him (Dr. G.) that possibly in these cases of fœtus papyraceus, the retention of the blighted ovum might he explained on the supposition that the twins were of the same sex, and that, therefore, a supply of blood reached the placenta of the dead fœtus just enough to prevent decomposition, but not enoughto prevent mummification. He further remarked that in that classical work on forensic medicine by Caspar, the author, as it seemed to him, had hit upon the true explanation of those stock cases in obstetrical literature of fully developed and living children born the one, three, or four months after the other. Caspar contends that these were not cases of superfœtation but of fraud. For, in none of these instances were both children delivered by the reporting physician; but the birth of the first child was only alleged by the mother. It was, therefore, reasonable to suppose that either a designing woman, or one ashamed of her sterility, had, during a feigned pregnancy, unwittingly become pregnant, and had, therefore, been really delivered a few months after the simulated birth of the spurious infant.

On motion of Dr. Jenks this specimen was referred to a committee of three, consisting of Drs. Jenks, McCall and Ingham, to examine carefully and report at the next meeting.

Dr. W. F. Jenks than exhibited specimens of tubercular degeneration of the mucous membrane of the uterus, of sub-peritonial fibroid of the uterus, and one of dropsy of the Fallopian tubes.

He called attention to the condition in the latter specimen which must prove, whenever it occurs, a complete bar to sterility, viz., the obstruction of the Fallopian tubes, and stated that he

believed a milder form, originating in catarrh of the tubes, to be a common cause of sterility.

Dr. J. L. Ludlow stated that it is a well known fact that prostitutes seldom become pregnant. Is not their sterility owing to catarrh of the tubes, resulting from continual sexual excitement?

Dr. J. S. Parry said that pelvic peritonitis was very common in prostitutes but believed it was not owing so much to sexual excitement as to the diseases incident to their calling.

Dr. W. H. Jenks called attention to the uselessness of attempting to treat sterility when due to this cause. He had seen Dr. Duncan pass the uterine sound into the Fallopian tubes, at least it had disappeared several inches in that direction.

The Secretary then read the following paper, from Dr. Hugh L. Hodge, in answer to a circular addressed to the profession, for the purpose of collecting statistics on cases of craniotomy. This paper possesses additional interest, from the fact that it was written by Dr. Hodge but a short time before his death:

Gentlemen: I have received your circular of the 10th of October, indicating a desire to collect statistics as to craniotomy cases where the conjugate diameter did not exceed 2½ inches. I am not able to further your object in this point, as, in a practice of more than fifty years, deformities to this extent have not occurred to me.

The only case with which I have been connected is that of Mrs. R., the details of which are well known to the profession, as they have been published in the journals, and more minutely by Prof. Gibson in his work on Surgery; by Dr. Meigs and myself in our respective works on Obstetrics.

At present I may say that the conjugate diameter of Mrs. R.'s pelvis was estimated at two inches, and that her physicians, Drs. Geo. Fox and Chas. Meigs, proposed the Cæsarean section, but after a consultation with Profs. James and Dewees, and also with Dr. Physick, craniotomy was determined on in accordance with the wishes of the patient. Delivery was effected by Dr. Meigs, by perforation and the use of the crotchet and craniotomy forceps, with safety to the mother. She again became pregnant, and was again safely delivered by Dr. Meigs after perforation by his craniotomy forceps. When pregnant a third time she consulted Drs. Beatty and Nancrede, who, insisting upon the propriety of hysterotomy, Prof. Gibson skilfully executed it with the most favorable results. The mother recovered without difficulty, and the child, a girl, survived. In her fourth delivery Drs. Fox and Meigs were again consulted, and Dr. Gibson operated. The success was perfect, a male child being preserved. I have since very frequently

heard of this family. The mother is, I believe, still living, the children have been healthy, have been married and become parents.

Mrs. R. was said to have been the subject of rickets in early life.

As regards your 7th question I have no experience with the cranioclast. It is an instrument similar to the osteotomist of Dr. Davis, and over which it has several advantages. As recommended by Sir Jas. Y. Simpson, its operation consisted not only in breaking up the cranium, but also as a tractor. In this point of view its "modus operandi" was similar to that of the crotchet, craniotomy forceps, etc.; by each one the head, more or less diminished in size, was forcibly dragged through the contracted pelvic passages. Hence all further compression was effected, not by the instruments employed, but by the walls of the pelvis; the lamentable consequences of compression thus made are well known. Wounds, lacerations, contusions of uterus, vagina and bladder and other tissues, followed by bloody infiltrations, inflammation, abscesses, gangrene, etc., too often with a fatal result, constitute the real dangers of craniotomy; hence the important principle of directly and efficiently compressing the cranium is one of the great improvements of modern obstetric science. The risk of injury to the mother's tissues being inversely to the degree of compression, the greater the diminution of the head the less pressure upon the walls of the pelvis. We ought, therefore, to be grateful to M. Baudelocque neveu, for first effectually carrying out this principle by means of his "brisé tête," or cephalotribe, as described by him in 1832. In this country I had operated upon the same principle by means of the forceps, by which, after perforating the cranium, I reduced its transverse diameter to 2½ inches, and thus effected delivery in pelves moderately contracted. In 1843 my instrument-maker, Mr. Rorer, manufactured a cephalotribe (compressor cranii) under my directions. No bad consequences even of a minor degree ever resulted in any of my cases.

Perhaps I may, on some future occasion, present to your Society a few observations on the great value of cephalotripsy, and upon that form of the cephalotribe which would render it most useful as a compressor, and also as a tractor.

Respectfully yours,

HUGH L. HODGE,
901 Walnut St.

Nov. 6th, 1872.

To the Phila. Obstetrical Society.

CLINICAL NOTES ON THE ELECTRIC CAUTERY IN UTERINE SURGERY.

BY J. BYRNE, M.D.,

SURGEON-IN-CHIEF TO ST. MARY'S HOSPITAL FOR DISEASES OF WOMEN; CLINICAL PROFESSOR OF UTERINE SURGERY TO LONG ISLAND MEDICAL COLLEGE, ETC.

(*Continued from page 736, Vol. V.*)

CASE V.—This case having already been referred to (No. 5, Table I.) calls for but little further notice. The lady, whose age is thirty-one, a widow, who consulted Dr. J. Marion Sims, in consequence of having been informed by her physician that she had cancer of the womb, which she did not believe, at the same time giving as a reason for her opinion the fact of her having had little or no pain or uncomfortable feeling in that region; and, moreover, that after full inquiry she felt satisfied there was no hereditary predisposition to such a disease. Menstruation had always been regular, and she had had no hemorrhage, but during the menstrual intervals she had of late noticed some watery discharge of an offensive odor.

Dr. Sims recognized a large cauliflower mass springing from the whole circumference of the cervix, and spreading out so as to occupy a great part of the vaginal cavity. He advised its removal, and requested me to operate by galvano-cautery, which I did on the 18th of June, 1871. In this operation the neck of the tumor was embraced by the wire loop and its removal thus effected; but in addition to the mistake of leaving too much behind, as before stated, there was also another error committed, which on account of the clinical lesson it teaches ought not to be overlooked. The instrument shown in Fig. 2 was then new, and used on that occasion for the first time, so that I was not accustomed to this improved means of contracting the loop, and miscalculated as to the screw motion. The consequence was that the tissues were too rapidly severed, and though there was no loss of blood whatever at the time, an alarming secondary hemorrhage took place about thirty-six hours after the operation, requiring the use of tampon.

No. 4 is a case where I assisted D. James L. Brown in operating, and which has been reported elsewhere. This was a promising case, and its fatal termination had nothing whatever to do with the merits of the operation; death being caused mainly by imprudence on the part of the patient and other circumstances beyond the control of her medical adviser.

The patient, in whose case parts of the right labium and perinæum were removed on three occasions (Nos. 5, 11 and 12), is the wife of a physician in this city. The cautery was resorted to in this instance merely for the purpose of excising portions of a large suppurating and offensive mass, hoping thereby to contribute in some measure to her comfort, or rather to modify her suffering.*

The extent to which the rectum, vagina, and neighboring parts were involved was such as to render the case an utterly hopeless one, and consequently nothing beyond palliative effects could be looked for from any operative proceedings.

Case VI.—On the 11th of last February I was requested by Dr. J. Marion Sims to operate by galvano-cautery in the case of a lady whose history is as follows: Mrs. ———, aged fifty, of healthy ancestry on her father's side, but several members of her mother's family have died from pulmonary affections, and one, an aunt, from cancer of breast. Menstruation commenced at 14 and has always been regular up to February, 1871. Has had seven children, and a premature confinement in 1856, from which she recovered speedily. From February, 1871, until August the catamenia were absent, but in the latter month she had a profuse metrorrhagia lasting for several days, and returning more copiously three weeks later.

On examination per vaginam, a tumor about the size of a hen's egg was found springing from the cervix and projecting into the vagina; canal of uterus of normal depth; body not hypertrophied. This tumor was removed by écraseur on September 23, 1871, and presented under the microscope the characteristic appearances of epithelial cancer. The patient seemed to improve in some respects until about the first of January, 1872, when hemorrhage returned and large quantities of blood were lost throughout that whole month.

Dr. Sims saw her on the 10th of February and discovered a large cauliflower tumor springing from the cervix and completely filling up the upper half of the vagina. The following day, February 11th, was appointed for its removal, and Dr. S. having accidentally sprained his ankle while stepping out of his carriage, requested me to see her and operate for him. The patient was found to be in a very exhausted condition from loss of blood and emaciated to so remarkable a degree that grave doubts were entertained as to the propriety of operating or risking the administration of any anæsthetic.

* Dr. Geo. M. Beard has also operated previously in this case by electrolysis, but with little effect.

In such a state of things, however, some interference seemed urgently demanded, and ether having been administered, the operation was proceeded with in the following manner:—

The platina loop was with considerable difficulty made to embrace *the upper circumference of the cervix*, and when *moderately tightened* the battery was immersed; little or no contraction of the loop being effected for a few seconds, so that the superficial tissues of the part to be cut might be thoroughly cauterized. When the wire was supposed to have entered the tissues a quarter of an inch or thereabouts, firm and steady traction was made on the tumor by means of a vulsellum,* and its connections *very slowly* severed by a further tightening of the loop. By this manœuvre the surface from which the tumor had been removed presented a deeply concave appearance, and there was no hemorrhage whatever. The uterine cavity measured about one inch from the bottom of the wound. No topical application was made.

As this patient resided some miles from the city, I had no opportunity of observing her subsequent progress; but one of the gentlemen who assisted at the operation† informed me some days after, when he called to see her, that her condition was very precarious. Towards the end of May, having occasion to visit her neighborhood, I called to see her, and found her going about and able to superintend her household affairs.

The following reply to a note of inquiry has been since received from her attending physician, Dr. Fürgang, of East New York:—

"DEAR DOCTOR: In accordance with your request I have given Mrs. ——— a very careful examination. Her pelvic organs, or what is left of them, seem to be in a perfectly healthy condition. There is nothing to the touch or sight that would lead to the suspicion of a return of her disease. The part from which the tumor was taken is a little puckered, but soft and covered with healthy-looking mucous membrane, and there is no tenderness on pressure there or in any of the adjoining parts. Her appetite is excellent, she sleeps well, and is rapidly gaining in strength and flesh."

This case calls for no further comment.

CASE VII.—This was what appeared to me to be epithelial cancer of the clitoris, though my friend Dr. J. C. Nott, who

* Traction by the cautery instrument should, in *all such cases*, be carefully avoided, and the instrument kept steady and in the same position from the beginning to the end of the operation.

† Dr. Nichol.

was present at the operation, thought it might possibly be non-malignant, and such as Sir J. Y. Simpson has described under the term of "caruncle." The tumor was about the size of an English walnut, had all the characteristic appearances of vegetating epithelioma, and requires but a few months for its development. It was removed by means of the cautery-knife (Fig. 3), and the patient left the hospital well, but has not since been heard from.*

CASE VIII.—VEGETATING EPITHELIOMA INVOLVING THE WHOLE CERVIX.—For a full report of this interesting case, of which the following is a synopsis, I am indebted to Dr. C. H. Giberson:—

Mrs. ———, aged 32, the mother of two children, and a widow for ten years; eldest child healthy, but the younger, now ten years old, has spinal curvature. She says a married sister died at 36, of "what was called cancer of the womb." Has had almost constant hemorrhage for the past thirteen months and seems to grow steadily worse, until now (April 15th, 1872) she is very anæmic and much depressed in spirits.

Examination revealed cauliflower growth involving the entire vaginal cervix, and extending slightly into utero-vaginal attachment on either side.

April 23d, she was examined by me and the condition found to coincide with the above description. April 26th the tumors and cervix were removed by cautery, much in the same manner as that detailed in case No. 6, but with this addition, that after all that could be embraced within the loop had been taken away, suspicious spots on the vaginal duplicature were excised by means of the cautery-knife. When the operation was completed the uterine cavity measured 1½ inch.

May 10th. Wound presents a healthy granulating appearance.

June 1st, five weeks after operation, healing process going on rapidly; uterus measures two inches in depth, the increase being due to filling up of deep cavity made by cautery.

June 20th. Dr. Byrne examined her and found a small granulating surface and looking well. Iodo-glycerine applied to surface. First menstruation since operation appeared June 8th, and lasted moderately three days.

July 31st. Uterus 2¼ inches deep, os small, no leucorrhœa, vaginal and uterine surfaces smooth and soft, very slight point

* Two operations were resorted to in this case, within the last month, tearing away, each time, large masses of suppurating vegetations and thoroughly cauterizing the subjacent surface.

to right of os of granular appearance. General health good, but complains of shooting pains in lower abdomen.*

September 30th. Third menstruation, lasting three days, has passed over without trouble.

October 12th. Considerable pain and slight occasional flow during the past ten days until yesterday, but vaginal examination shows no ulceration and no induration perceptible.

Since the above report (October 12th) the patient is doing well, but it is evident that her case is a less promising one than could be hoped for, and hence I have thought proper to present it as a darker side of the picture.

She has no cachectic appearance, however, but on the contrary looked to me so much stronger and healthier, when seeing her in the street two or three weeks ago, that I hardly recognized her. Nevertheless I look forward to her future history with much interest and some little misgivings.

CASE IX—VEGETATING EPITHELIOMA INVOLVING THE WHOLE CERVIX.—Mrs. ———, aged 45, has had seven children and two miscarriages; the last living child seven years old. Menstruation has always been regular up to six months ago, when the flow became excessive, and the interval less and less, until now (April 18th, 1872), it is almost continual. On digital examination the whole of the cervix uteri was found very much enlarged and greatly indurated, but soft and spongy on its presenting surface, tender to pressure, and bleeding on the slightest touch. The body of the organ was not enlarged and the vaginal walls intact.

When brought into view the os was observed to be surrounded by what appeared like luxuriant granulations, though the unstripped parts of the cervix were in color somewhat paler than normal. The case was diagnosed as one of epithelioma in the early sprouting stage, and she was admitted into St. Mary's Hospital for operation May 4th. The patient was anæsthetized and the entire cervix removed by the cautery, but the method pursued being so entirely similar to that of other cases already detailed, no further description is here called for. There was no blood lost during the operation, nor was there any secondary hemorrhage. Vaginal bathing with tepid water and carbolic acid was commenced on the third day after operation and continued for two weeks; sixteen days after the operation a speculum examination was made, and the surface from which the

* The increased depth of the uterus, as noticed at this examination, is due to a filling up of the excavation by *healthy* granulation, and is not peculiar to this case.

disease had been excised was almost entirely covered with healthy membrane, and the patient feeling well and anxious to see her family, was permitted to leave the institution. She has not since been heard from.

Case No. X., being very similar to the above, offers no points of special interest to warrant a full report on the present occasion, and sufficient time has not yet elapsed to say anything of results, further than that they are not less promising than in any of the preceding cases.

Case No. XI. is that of the patient whose condition has been noticed (No. 4), and this second operation, like the former, was resorted to merely for the purpose of taking away such parts of the suppurating excrescences as could be safely spared.

With regard to the eleven cases of carcinoma in which, like the above, operative measures were resorted to for the purpose of affording temporary relief merely, the limits of this paper will not permit of their being referred to at any length. In seven of this latter class the disease had attacked both vagina and uterus to such a degree as to almost obliterate the one, and utterly degenerate the other; yet in no single instance did the removal and destruction of such diseased tissues as could be safely reached fail to relieve in a very remarkable degree, and add to the comfort of these afflicted sufferers.

This single statement, it seems to me, supported as it is by actual observation, ought to satisfy those who question the utility of any operation in such hopeless conditions. It is surely no principle of conservative surgery to ignore palliative measures, even where disease is admittedly incurable; and yet, among the numerous victims of this terrible destroyer, how many a valuable life that might have been safely prolonged and robbed of much of its wretchedness has been allowed to ebb away in loathsome torment!

It is true, until very recently, non-interference in uterine cancers has been justifiable and eminently proper, owing to a want of the means whereby such ailments could be safely ameliorated, but I am fully convinced by past experience that this want no longer exists. However transitory, therefore, the relief may often be, I doubt the wisdom of those who in the face of facts would still persist in thinking that their whole duty had been performed by quoting a hackneyed axiom in the pathology of these diseases, which says: "When the patient's constitution has really become infected, these diseases, if extirpated, invariably return and conduct the person who is affected by them to inevitable destruction."*

* Müller on Cancer, etc. London, 1840, page 28.

It should not be forgotten, however, that in very many instances, the prolongation of life but for one month may be of the highest consequence to a family about to be deprived of a mother's influence and watchful care, even though that mother be a helpless invalid.

Furthermore, in order to determine as to the propriety of operations for the relief of such patients, there are, or ought to be, but two questions worthy of consideration, namely: Have we the means whereby such a course may be undertaken without risk to life, or in any way adding to existing evils? And secondly, Have we good grounds, *i. e.*, clinical data, for hoping to ameliorate the sufferer's condition thereby? Apropos of these considerations I submit the following case:—

CASE XII.—CARCINOMA OF UTERUS AND VAGINA. OPERATION PALLIATIVE.—Mrs. ———, widow, aged 30, has two children, and always enjoyed perfect health until some time in the month of January last. About this time menstruation, previously regular, appeared in great excess and lasted over eight days. This was followed by a copious watery discharge for two weeks, when metrorrhagia again appeared and hemorrhage on the latter occasion continued for ten days. A watery and whitish discharge as in the previous interval continued up to the first week in March, when, after a hard day's work as chambermaid in a hotel, she was seized with violent expulsive pains, and almost fatal hemorrhage. She cannot remember how long the flooding lasted then, but on its ceasing she applied for admission and was received into one of the New York hospitals, where she remained for a few weeks without having had anything done for her. On Friday, the 10th of May, she applied at the College of Physicians and Surgeons in 23d street, and was examined by Professor Thomas, who at once discovered extensive carcinoma of the uterus, involving the vaginal walls anteriorly and posteriorly, and accordingly pronounced her case as utterly hopeless, which it certainly was. Under these circumstances she applied for admission to St. Mary's Hospital, May 13th, 1872, with a letter from Dr. Chas. S. Ward, who stated that he recommended the patient to see me, in hopes that I might be able to do something towards relieving her temporarily by galvano-cautery.

When admitted, she said she had not ceased flowing for several days past, and her wretched and bloodless countenance bore fearful testimony to the truth of this statement, for she was unable to move one step without support, and it was found necessary to administer stimulants freely before she could be safely removed to bed.

By digital examination I found the condition precisely as Dr. Ward had stated, and as the loss of blood was frightful, nothing could then be done beyond tamponing the vagina. This succeeded in arresting the hemorrhage; but on its being removed the following day it was evident that something of the kind would again be necessary, and a fresh tampon was applied. This latter was allowed to remain in 48 hours, and its removal not being followed by any return of hemorrhage, I decided to try what could be done by the cautery at the earliest possible moment.

The operation which took place on Saturday, May 18th, may be described as follows: The upper half of the vagina being packed with a large encephaloid-looking mass adherent on all sides, it was found impossible to loop more than a portion of it, so that after removing all that could be taken in this way a much larger proportion yet remained. The soft brain-like character of the outgrowth preventing the heated wire from acting as a hæmostatic, considerable blood was lost, and it was therefore determined to complete the operation as quickly as possible. This was done by grasping the more projecting parts of the mass by a strong polypus forceps and forcibly tearing them away piece by piece, until the greater part of the spongy excrescence was twisted off from the uterine cavity as well as the vagina. The cautery-knife was employed to trim off and scoop out whatever remained, and the dome-shaped cauterizer thoroughly applied to the whole subjacent surface. It was now found that the hemorrhage had entirely ceased, but as a security the uterine cavity and vagina were carefully tamponed and the patient put to bed.

Her daily record for the succeeding two weeks contains nothing of sufficient importance to warrant minute details. The tampon was removed 48 hours after the operation, and no hemorrhage whatever appearing, the vagina was ordered to be washed out twice daily with a mixture of carbolic acid, glycerine, and water.

No peritoneal or other inflammatory trouble followed this operation, and very many of her former pains and distressing symptoms were entirely relieved. Her appetite and sleep returned, and in three weeks she was strong enough to sit up and walk through the ward.

The purulent discharge following the use of the cautery continued for 15 days, after which appeared a slight, serous-looking, but yet entirely inodorous drain.

June 15th, the parts operated upon were carefully examined and found to be smooth, but uneven and somewhat hard to the

touch, but, as far as the eye could reach, seemed to be covered with some kind of membrane, and manipulation provoked no hemorrhage. A steady improvement has been observed in her appearance from day to day, and now feeling comparatively strong and being anxious to visit her friends she was permitted to leave the hospital. I regret to add that I have not been able to trace her whereabouts since.

Cases, of which the preceding one may be considered a type, might also be related, had I not already far exceeded the proposed limits of my remarks. I deem it proper to state, however, that in three out of the ten cases of pelvic encephaloid cancer operated upon, the disease, though limited, included the whole uterus, and these were by far the most unsatisfactory of this class. In one case, a patient of Dr. Sims, I operated twice, and though in the second effort he, Dr. S., scooped out large quantities of the diseased mass from the uterine cavity by means of his currette, preparatory to the application of the cautery, and despite a very complete charring of all the denuded surfaces within reach, the bleeding excrescences were rapidly reproduced. This lady, who resides in another State, though not improved by what had been done, was certainly made no worse, and in accordance with advice returned to her home.

Altogether, from what I have observed in these three cases, I believe but little if any advantage can arise from the use of the electric cautery in carcinoma of the body of the uterus, when this organ has been the starting-point of the malady, and with the cervix has already been destroyed by the disease in its upward march.

The next case to which I shall refer is one of interstitial fibroid or perhaps what might more properly be designated diffuse fibrous hyperplasia of the right half of the uterus.

CASE XIII.—INTERSTITIAL FIBROID.—Miss ——, aged 22, sought advice on account of menorrhagia, in March, 1869, which had existed for about 12 months previously. At this time her friends stated that she seemed to be increasing in size, and that a hard swelling had been noticed towards the lower and right side of her abdomen, but no examination was made until August of the same year. At this period a large globular and firm tumor was found occupying the right iliac fossa, and a digital examination per vaginam discovered the os uteri dilated to its utmost capacity and this same body presenting. The margin of the open cervix was traceable only to the extent of one-half its circumference, the remaining or right half being continuous with the intra-uterine tumor. Menorrhagia was very profuse, and each

catamenial period was likened to a severe and prolonged labor, being attended with violent expulsive pains of an intermittent character. In September, 1869, an attempt to draw down the tumor was made with a view of removing it, but its sessile character was such as to render the effort impracticable.

In December, 1869, Professor Barker saw the case in consultation with her attending physician, Dr. Schapps, diagnosed a recurrent fibroid, and discouraged any attempts for its removal. Up to November, 1871, the tumor continued to increase in size upward as well as within the vagina, and extended from two inches above and to the right of the umbilicus down to the vulva. The pelvic cavity was now completely filled up with this firm irregularly-lobulated mass; defecation was seriously impeded, and the frequent use of a catheter was called for to empty the bladder, which could only be entered by a long flexible one and with much difficulty. Menhorrhagia was not so excessive as formerly, but the violent expulsive pains already referred to still recurred with each catamenial period. She was now in a most deplorable condition from long suffering and loss of blood, and at this period in her history I saw her for the



Fig. 11.

first time at the request of Dr. Schapps. By placing the patient on her side and drawing back the perinæum, a sound could be passed into the uterine cavity, and plainly

felt through the abdominal wall above and to the left of the umbilicus, and the depth measured at least ten inches. The vaginal mass was firm and elastic to the touch, and numerous large-sized blood-vessels were observed ramifying on its surface. An attempt to remove this intra-vaginal part by galvano-cautery was now proposed and consented to. The operation, which took place November 15, 1871, may be described as follows: A strong semi-circular needle, seven inches in length exclusive of handle, with eye $\frac{5}{8}$ of an inch from point, and carrying a heavy thread, was made to penetrate the tumor posteriorly as high up as could be reached, and was pushed forward until the point could be felt behind the pubic arch, provision being made to protect the urethra from injury. A slight additional force enabled me to reach the thread by means of a tenaculum, and the needle was withdrawn, while one end of the thread was brought down anteriorly. A strong platina wire being attached to the cord, was next drawn through and made to take the place of the latter. At this stage some trifling hemorrhage was observed. A connection was now made to the battery, and by very slow traction, occupying at least fifteen minutes, the tumor was split down longitudinally, and thus divided into two nearly equal halves, and without loss of blood. The left half of the mass was now looped, and its removal effected with comparatively little difficulty. An effort was next made to dispose of the remaining portion by the same process, but after repeated trials this method was found to be impracticable, principally on account of its more irregular and conical shape. Recourse was now had to the cautery-knife, with which the whole was removed piecemeal, and all irregular projections within the pelvic cavity being trimmed off, the operation, which lasted two hours and a quarter, was thus completed.

The patient's recovery from the effects of the operation was rapid, and unattended by the slightest inflammatory symptoms or irritative fever. Relief from the more distressing symptoms was complete; her appetite and strength rapidly returned, and though no attempt at spontaneous enucleation of the upper segment of the tumor took place, an occurrence faintly hoped for, yet her general health continued to improve, and for a period of over six months her life was one of comparative comfort.

In the early part of June, however, Dr. Schapps informed me, that though the abdominal part of the tumor had not apparently increased, the pelvic growth had to some extent reappeared, and the menstrual expulsive pains returned with much severity.

On the 15th of last August I was urgently requested to see her, on account of great difficulty having been found by Dr. Colt, Dr. Schapps being then in Europe, in empyting the bladder by catheter, following an unusually severe and long-continued attack of her periodical expulsive pains. Her suffering was described by her mother as equal to a severe labor, and she was hourly expecting a return of the same agony, which, in her now emaciated and anæmic condition, it was thought impossible she could survive. The tumor was to be seen bulging out between the vulva, and a flexible catheter was passed into the bladder with much difficulty. On the night of the 17th she was seized with the dreaded pains, and during one violent paroxysm a large part of the tumor was forced through the vaginal outlet, lacerating in its passage the perinæum and one side of the vulva.

Its size, shape, and general appearance will be understood by reference to the above illustration; and the dotted lines indicate the form and position of its upper pelvic and abdominal portion.

The protruding part measured 9 inches in length, and from 14 to 15 inches in circumference. For a space of two or three inches from its lower end sphacelated discoloration was observ-

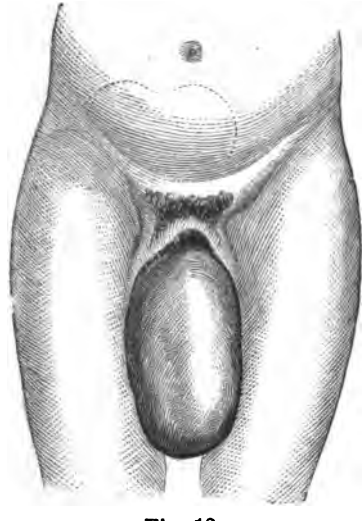


Fig. 12.

ed, and the odor of decomposition was strongly marked. Numerous large blood-vessels were seen ramifying on its surface, the upper two-thirds of which was of a deep red color, from in-

terruption in its circulation; while in consistence it presented the firm character of an ordinary fibroid.

THE OPERATION.

The patient being anæsthetized, powerful traction was made below, while steady pressure was kept up on the supra-pelvic extremity of the tumor; but after continued efforts it was found impossible to bring it down more than one inch beyond the position it had already attained, owing in part to its connections within, but principally on account of its larger dimensions above. A double ligature of strong whip-cord was now passed from behind forward through the centre of the tumor, immediately outside the perineal commissure, steady traction being all the time kept up, and the mass ligated in the usual manner, the principal object being to insure full control of the stump during and after excision. As the vascular appearance of the parts forbade the use of any ordinary-sized platina wire, a piece six inches in length of No. 16 (Stubb's gauge) was fastened by binding screws between the two conducting cords of the battery, and curved so as to adapt itself to the contour of the tumor. This was now applied *while cold*, to the under surface, half an inch below the ligature; and all being in readiness, the battery was next immersed, and the heated wire slowly carried around the tumor, as in circular amputation, thus effecting a deep fissure, and completely sealing up the superficial vessels. The battery was now raised and the wound examined, but no disposition to hemorrhage was observable. The wire was next applied to the under surface of the tumor as in the first instance, the battery reimmersed, and by a slow and steady see-saw movement the whole mass was cut through. Though the ligatures had by this time become quite loose from traction, there was no bleeding from the stump; nevertheless, in order to guard against secondary hemorrhage, the whole surface was well seared over a second time, and the dome-shaped cauterizer pressed into every suspicious point.

The stump was then returned within the vagina, and an anodyne suppository of belladonna and morphine ordered, but no dressing to the wound was used or deemed necessary.

As space will not permit a detailed record of her progress after the operation, I will merely add that, though suffering from two extensive bed-sores, she improved rapidly and without the slightest symptom of local inflammation or irritative fever. The ligatures were allowed to remain for three or four weeks, with the hope of effecting some reduction in the upper tumor

by drainage; but their presence giving rise to a good deal of annoyance, and for other obvious reasons, they were taken away.*

Case XIV.—Case of Sessile Intra-Uterine Fibroid.—Mrs. D., aged thirty, widow, has had five children and one miscarriage. Menstruation was always regular up to two years and a half ago, when her periods commenced to be prolonged and the flow excessive. She states that she has been under observation at Bellevue Hospital for about three months previous to her admission into St. Mary's, which was on the 15th of April, 1872. Her metrorrhagia had been for some time past almost continual, and as she was very much reduced from loss of blood, it was deemed best to prescribe rest, nourishment, and

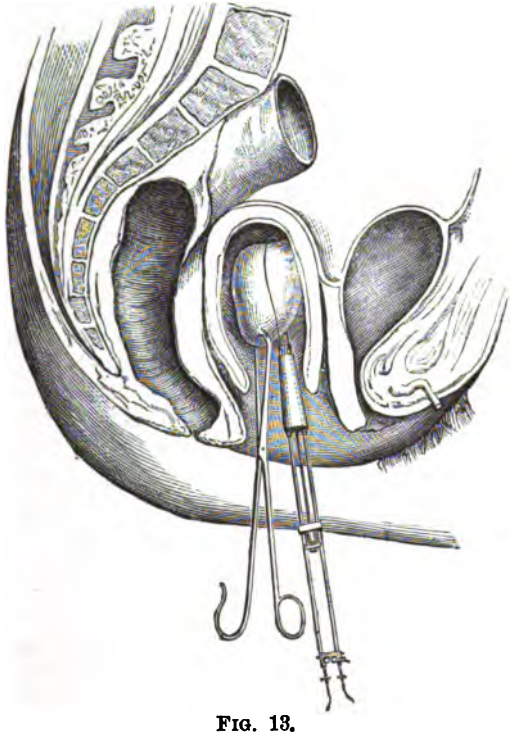


Fig. 13.

local astringents, before submitting her to the ordeal of a thorough examination. On the 1st of May, her condition having

* A third operation has since taken place, and will be described before the close of this paper.

greatly improved, an investigation was made with a view to diagnosis and with the following result: Above the pubis and a little to the left was noticed a firm globular tumor in size about that of a four months' pregnant uterus, somewhat tender to the touch, and slightly movable from side to side. A digital examination revealed the presence of an intra-uterine tumor presenting within the os, which was soft and dilated to the extent of a silver dollar. The growth resembled an ordinary fibrous polypus, and it appeared to be free and detached from the uterine wall as far as the finger could reach, but owing to its large size (being about that of a human heart, which in shape and consistence it resembled), and as in its upper half it seemed to fill the entire cavity, the true character of its connection could not then be made out. I had not the good luck at this time to be made acquainted with the simple and ingenious device of Prof. Thom, as by the aid of which I have no doubt I might have been able to estimate the extent of its attachment.

The case was therefore diagnosed as one of intra-uterine fibrous polypus, and most probably pediculated. It should also be stated that manipulation with the sound failed to give any clear idea of the nature of its attachment.

On the 4th of May, the patient being anæsthetized, the cautery loop was passed into the uterine cavity and over the tumor; but as the latter was now found to be much less movable than at first supposed, this step in the operation was attended with the utmost difficulty. I soon noticed that the wire could not possibly be made to embrace the outgrowth sufficiently far up to remove it entire, and now for the first time the real character of its attachment admitted of little doubt.*

A strong vulsullum forceps, being once more carefully passed through the loop and into the cavity, was opened, and the apex of the tumor laid hold of. Firm traction to the extent of partially inverting the uterus was then steadily maintained, while the loop was passed up as far as possible and tightened. The conductors were next attached and the battery immersed, when by a slow movement of the screw in the loop-handle the part embraced was cut through and removed. Space being now afforded for the introduction of two fingers, it was found that but little more than one-half of the tumor had been taken away. A repetition of the proceedings just described resulted in the removal of the remaining half, the sur-

* The attachment of the tumor is not quite correctly represented in the above sketch, the upper portion being less spread out and proportionately narrower than the actual condition observed would warrant.

face from which it was taken being slightly elevated at its circumference, and seemingly about 2½ inches in diameter.

No blood was lost during the operation beyond what would necessarily come from handling the parts, nor was there any secondary hemorrhage. The uterus was injected daily with a weak solution of carbolic acid and vinegar, and the after-treatment in other respects consisted of beef-tea, milk punch and tonics, with an occasional anodyne suppository. Two weeks after the operation there was a trifling bloody discharge when the uterine cavity was explored by a polypus-forceps, and a portion of slough removed. A strong solution of iodine was then freely applied and no further bleeding occurred. On the 30th of May, twenty-six days after the operation, the cavity of the uterus measured a little over three inches, and as the patient seemed to be daily improving, she was pronounced out of all danger. She left hospital on the 3d of June.

Case XV.—Fibrous Polypus of the Uterus.—Kate ——, aged forty-five, unmarried, had always enjoyed good health and menstruated regularly up to June, 1870. About this date she says the intervals between her courses began to be prolonged,



Fig. 14.

and the flow scanty, but that towards the end of December she was taken with "flooding," which lasted two weeks. Throughout the year 1871 she had attacks of metrorrhagia, sometimes lasting for ten and even fifteen days, and for the cure of which she stated she had taken "a power of medicine." She noticed some increase in the size of her abdomen, but it did not engage

her attention to any extent; and on the 30th of December, 1871, she was seized with severe hypogastric pain and "bearing down," when a large tumor made its appearance outside of the vulva. Dr. J. P. Dwyer was now called to see her, diagnosed a fibrous polypus, and recommended her to be sent to St. Mary's Hospital for operation.

On examination the tumor was found to be firm and lobulated, and in size about twice that of a closed hand. Its pedicle, which measured about four inches in length, was round, and about one inch in diameter at its smallest part, which appeared to be midway between the tumor and its uterine attachment. Affixed to the pedicle, about an inch and a half from the tumor, was a small pediculate fibroid outgrowth.

On attempting to pass a sound into the uterus, which appeared fully dilated, it was found impossible to carry it beyond one inch anteriorly and less than half that distance either behind or in a lateral direction. A finger passed into the rectum came in contact with a firm body as far as could be touched, and conjoined pressure over the pubes failed to convey any very definite idea as to the form or position of the fundus. Nevertheless, partial inversion of the uterus was diagnosed, and accordingly, *instead of proceeding to sever the pedicle near what seemed to be its uterine insertion, the point selected was half an inch above the little secondary outgrowth. When the heated wire had passed through and the tumor was removed, the uterus was found to have reverted itself and the cavity measured over three inches in depth.* Two weeks after the operation the patient was discharged cured.

CASE XVI.—LARGE FIBRO-CELLULAR POLYPUS OF THE CERVIX; FIRST NOTICED FIVE DAYS AFTER PARTURITION.—Mrs. M——, aged 28, was delivered of her third child April 6th, 1870. During gestation nothing occurred to excite her suspicions, and her general condition was in no way different from that observed in two previous pregnancies. In this third labor, which lasted but a few hours, she was attended by a midwife, and no difficulty occurred further than that the after-birth was slow to come away. Yet she was sure no undue traction had been made on the cord.

Three or four hours after delivery she was seized with very severe expulsive after-pains, which lasted for three days, then subsided, and her condition for the following two days was, on the whole, comfortable.

On the fifth day, being without a nurse, and having no one to care for her children, she ventured to get up and walk about; but no sooner had she done so than a large substance,

which she thought was her womb, protruded from the vagina. She immediately returned to bed, and so remained until I was requested to see her, which was on the 14th (eight days after confinement). During these three days there was a constant passive hemorrhage, and she appeared very weak and anæmic; but she complained of no pain, and the greater part of the tumor had retreated within the pelvic cavity soon after assuming the recumbent position. In shape it was ovoid, or rather pyriform, about the size of a uterus at from three to four months' gestation, and of firm consistence, except at its lower surface, where it yielded readily to pressure from below upward, but immediately recovered its convexity on the pressure being removed, thus giving a very distinct impression of its being hollow. Several abraded spots were observed on its sides and inferior surface, from which blood oozed, and the whole was of a deep flesh color.



Fig. 15.

In accordance with my advice, she was brought to St. Mary's Hospital April 16th, 1870, when a careful examination was made,

NOTE.—Owing to a mistake on the part of the printer, a foot-note at page 557, which reads: "Two operations were resorted to in this case within the last month," etc., has been misplaced, and refers to case No. XI. on the next page.

Also, by a typographical error, the whole number of cases treated is put down in one place as 73 and again 70, whereas in each instance it ought to read 72.—J. B.

with the hope of deciding as to whether this was really a case of inversion of the uterus or a polypus. On introducing two fingers within the vagina and making traction on the prolapsed mass with the other hand, it was found that there was no cervical rim, but, on the contrary, the vaginal surfaces and that of the tumor were continuous, except at one small spot anteriorly, which was depressed. Here an effort was made to introduce a probe or sound, but unavailing. By examination per rectum and pressure above the pubes, I failed to satisfy myself of the presence of a uterus above, and for the time being desisted from further efforts at diagnosis. At this juncture, the case being one of unusual interest, I requested Drs. Thomas, Noeggerath, and James L. Brown to see her with me. The same steps towards forming a diagnosis were again resorted to, and after repeated efforts Dr. Thomas managed to get a probe into the cavity of the uterus from the bottom of the little concavity in front, and thus all doubts as to the position of that organ and the character of the tumor were at an end. It is but proper to state, however, that before the cavity of the uterus was reached all present felt certain of having detected, by bimanual examination, a body which it did not seem possible could be any other than the uterus. Nevertheless, had every attempt to reach the cavity of the uterus failed, and no other evidence of its existence above been found than that afforded by the rectal and supra-pubic touch, the true nature of the case must still have remained doubtful; because, supposing this to have been a case of inversion, it is very easy to imagine how a subperitoneal fibroid might have swung into the position vacated by the inverted uterus, and thus deceive the very best diagnostician.

Again, though, as Dr. Thomas observes,* the presence of a body in the uterine region may warrant a more or less forcible introduction of a probe when, owing to the agglutination of tissues by inflammatory action, the aperture may have become closed, it should not be forgotten that under such circumstances but a small amount of force would be needed to effect a passage into cellular tissue or elsewhere in this immediate neighborhood..

At all events, this case, if not unique, is so interesting and instructive that no apology is needed for occupying so much space with its history.

THE OPERATION for the removal of this polypus was also no less profitable than interesting, because, in addition to errors

* Diseases of Women, 3d edition, p. 412.

committed in operating, and, of course, carefully avoided ever after, all my subsequent experiments towards devising a more powerful and yet portable battery than had been generally used heretofore, were prompted by what was observed on this occasion. In the first place, though the battery employed was one of huge dimensions, the thickness of the wire which it was capable of heating was quite insufficient to thoroughly cauterize the tissues in its passage through the pedicle; secondly, I contracted the loop too rapidly; and lastly, to make the matter still worse, traction was made on the tumor, so that, like ripping a seam in cloth, while some of the fibres were cut, many were barely touched with the heated wire.

The consequence of all this was, that my patient narrowly escaped death from hemorrhage. One large artery had to be ligated, and the vagina was tamponed with oakum soaked in persulphate of iron.

On account of this latter objectionable application, of which I can conceive nothing more filthy and abominable under all circumstances as a uterine or vaginal styptic, the cut surface was slow to heal, yet the patient was discharged well within a month from the date of her admission.

She has since given birth to her fourth child, and is in the enjoyment of perfect health at present.

This case is suggestive of many pathological theories and speculations; but the limits of this paper will not permit me to say more than that I believe the formation of this polypus commenced in the cervical canal before or soon after conception; that its growth took an upward direction; and, as the development of the uterus was proportionately greater and more rapid than that of the tumor, there was thus ample room afforded for its safe accommodation during gestation.

Case XVII.—Amputation of Cervix Uteri for Hypertrophy and Procidentia, resulting in Permanent Elevation of the Uterus.—Mrs. ——, aged 35, has had five children, the youngest 3½ years, and one miscarriage about three years previous to my seeing her, which was on December 16th, 1870. Complained of severe and constant back-ache, bearing-down pains, leucorrhœa, and vesical tenesmus. Menstruation regular, though somewhat painful, and occasionally in the intervals more or less muco-sanguineous discharge, especially after long standing or fatiguing exercise. On examination per vaginam, the uterus was found low down, immediately within the vulvar outlet, and the cervix much enlarged, irregular in form, and tender. Os tincæ sufficiently open to admit the point of finger,

but not further dilatable on account of the swollen condition of surrounding tissues.

The vesical wall was dragged down to such a degree as to constitute cystocele when the patient stood erect. The finger, on being withdrawn, was covered with a sanious mucus. The speculum being now introduced, the appearance of the organ was such as might be expected, the cervix fully two and one-half inches in diameter, purplish-red, and lobulated. The sound passed to the extent of four inches, and in such a direction as to show some degree of anteversion with slight flexion; but by conjoined manipulation it was evident that the great depth of the uterus was due to the increased size of its cervix, and that there was little or no corporal hypertrophy.

After a few months' treatment, consisting principally of warm vaginal douches, iodo-glycerine to cervix, a Hodge's pessary, etc., the uterus improved greatly, and she stopped visiting the out-door department of the hospital for some time.

Jan. 4, 1872, she applied again for advice, and stated that her former improvement did not continue long.

Her general physical condition was now much changed for the worse, and she had had several attacks of protracted menorrhagia since last seen. The depth of the uterus was four inches, and except that the most gentle introduction of the sound caused hemorrhage from the cervical membrane, the parts presented an appearance very similiar to that first observed.

She was advised to come into hospital for operation, and did so on Feb. 2, 1872, when it was decided to remove the whole cervix close to its vaginal insertion, by galvano-cautery, and subsequently, when the parts would heal, to take away portions of the anterior vaginal wall by Dr. J. C. Nott's clamp-écraseur.

Operation.—By means of the small cautery-knife (G) a circular fissure was made around the base of the cervix so as to form a bed for the wire-loop. The latter was next adjusted and the part to be removed securely embraced, while *slight* traction was made by means of vulsellum. (See Fig. 10.)

The battery connection being now effected, the loop was *slowly* contracted, so as to occupy not less than eight or ten minutes in passing through, thereby avoiding hemorrhage. When the cervix was lifted out the stump was found to be deeply concave; and as there was no appearance of blood, neither tampon nor other dressing was applied.

During the three days subsequent to the operation, no special treatment was needed, as the patient felt no inconvenience whatever from what had been done.

About the fourth day—which I find is the rule in such cases—a copious discharge of healthy pus began to flow, and during the ensuing week the vagina was douched twice a day with tepid water and castile soap, and at a later period with a solution of sulphate of zinc and water (ʒ i. to Oi.). An examination made on the 2d of March (four weeks after operation) showed the parts to be entirely healed, and the surface from which the cervix had been removed, *smooth* and covered with healthy membrane.

March 9th.—The patient was placed on the table, and anæsthetized previous to operating on the anterior wall, as above stated, my friend Dr. Nott and the members of the hospital staff being present, when, to the surprise of all, the following condition of things was observed: *There was no bulging of the vesico-vaginal septum, and the uterus was with difficulty reached by the finger, as if the vaginal canal had been stretched in an upward direction. The uterus was not alone elevated, but no reasonable amount of traction, by means of a vulsellum, could move it from its lofty position.* No further operations being indicated, she was soon after discharged cured.

This remarkable degree of fixation of the uterus, following amputation of its cervix by the electric cautery, is a clinical fact worth bearing in mind, especially as neither fever, pelvic or abdominal pain, nor, in fact, any other symptom indicative of inflammatory action, followed the operation. However, there cannot, I think, be a doubt but that it was due to some local inflammation of a subacute form in the areolar tissue and lymphatics of the broad ligaments, resulting in a tightening or abnormal inelasticity of the uturine supports.*

CASE XVIII.—Intra-pelvic Fibroid.—Third Operation on Same Patient.—The young lady whose case has already been fully given (Case XIII.), having entirely recovered from the severe ordeal undergone in August last, and having suffered much of late from vesical tenesmus, occasional retention of urine, and other distressing effects of pelvic impaction, was induced to submit to a third operation on first of the present month (December). This consisted in the removal of all that part of the tumor within the lower pelvis, the presence of which was the cause of all the suffering now complained of, and the excision of which at an earlier period did not seem warrantable on account of her weak condition.

* In procidentia, where amputation of the cervix is called for, would not the introduction of a cylinder speculum after operation, and its retention for eight or ten days, insure a permanent elevation of the uterus, and provide against relapse of other parts?

The part now referred to may therefore be considered as the stump from which the large mass was taken on the former occasion. It does not seem to have increased in size during the last three months, though its presence has become more and more painfully felt of late. The upper two-thirds of the pelvic cavity was tightly packed, but the inferior portion towards the vaginal outlet was less crowded, principally on account of the globular form of the stump. The latter was perfectly smooth, and presented no appearance of having ever been an open granulating surface or being covered with cicatricial tissue.

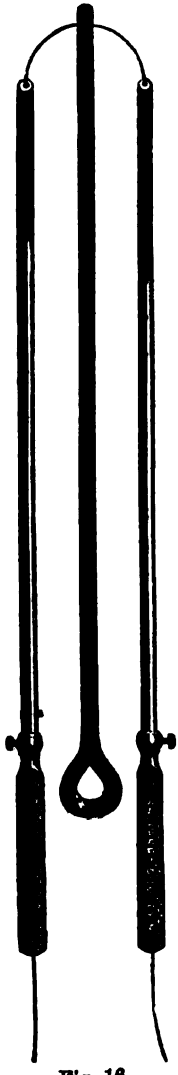


Fig. 16.

In reflecting over the measures suggested to my mind for accomplishing its removal, either of two methods appeared practicable,—to repeat the operation first resorted to, by splitting the mass into two parts, and then looping either half; or to attempt its removal in one piece by a loop thrown around the whole circumference of the tumor.

On account of the great length of time occupied, however, not to speak of the almost insurmountable trouble and difficulties experienced on a former occasion, the first of these plans offered but little attraction; and though it seemed at first impossible to devise any means by which a smooth globular mass might be embraced by a wire noose, I decided to make the effort.

The method practised may be described as follows: A large-sized hard rubber crochet-needle, rounded at the end, was heated and slightly bent so as to accommodate itself to the curve of the sacrum and posterior contour of the tumor.

A small hole was drilled transversely near its distal extremity, and at right angles with the direction of its curve, and through which a stout platina wire was passed half its length. The free ends of the wire were now passed through two copper tubes, each $\frac{3}{16}$ of an inch in diameter and eight inches long, and bent to nearly the same form as the rubber rod (Fig. 16).

An anæsthetic having been administered, and the patient placed on her left side, the two tubes with the rubber rod

between were carried behind the tumor and as far up as deemed safe.* The rubber support being now intrusted to an assistant, and maintained steadily in position, one of the copper tubes was carried around half the circumference of the tumor, the wire being pushed up, piece by piece, from below, and when the centre anteriorly had been reached, was so held until the opposite half had been encircled in like manner. Two small pieces of wood, each one inch and a half in length, flat-oval, and having two holes running through longitudinally for the reception of the copper conductors, were one after the other slipped up so as to unite, yet insulate the latter.



Fig. 17.

This being accomplished, the free ends of the platina wire were next passed through a modification of the loop instrument as shown in Fig. 2, and the copper conductors firmly fastened in the socket. All being now in readiness, the battery connections were made, when the heated wire cut through the

* Fearing that some abnormal position of the Douglas *cul-de-sac* might exist, the part selected for looping was some distance below the fornix vaginæ.

rubber support and embedded itself in the substance of the tumor.*

The rubber rod was now withdrawn, and the loop *very slowly* contracted, the time occupied in cutting through the whole mass being fully thirty minutes, exclusive of necessary interruptions. There was no hemorrhage from the stump, but the vagina was tamponed as a precautionary measure.

Reaction after the operation was, in this instance also, quite satisfactory; and though her pulse for several days did not get below 110, she expressed herself as feeling very comfortable and free from abdominal pain or tenderness. The vaginal dressings were removed on the third day, and the parts well bathed with tepid soap and water, to which was added carbolic acid. Copious discharges of healthy pus now appeared, the vagina was douched several times a day, she enjoyed and retained her nourishment and stimulants, and everything progressed favorably up to the night of the 10th, nine and a half days after the operation. On that night the weather suddenly became intensely cold, and being nervously apprehensive that urine might accumulate in the bladder so as to require the use of a catheter, she persisted in getting out of bed a number of times to pass water.

At an early hour of the morning of the 11th, Dr. Schapps saw her, was told she had several chills, and recognized well-marked symptoms of incipient tetanus. This condition of things rapidly became worse, and though every means at our command was promptly applied and persevered in, no amelioration of her spasms was effected thereby, and she died at four A. M. on the 14th.

Autopsy.—An incision was made from the ensiform cartilage to the symphysis pubis, and the integuments dissected from the latter preparatory to its removal. This being effected, a careful inspection of the abdominal and pelvic contents *in situ* was thus afforded. There was almost a total absence of adhesions, or any evidence of recent or remote peritoneal inflammation. The ovaries were small and shrivelled, but healthy, and the tubes, with their peritoneal attachments, were free and in other respects normal.

The utero-ovarian plexus of veins on right side was in a varicose condition, and one fully as large as the jugular issued from the outer circumference of this varix, and passed directly upward to a point opposite the gall-bladder, where it entered the ascending cava. The fundus uteri was cup-shaped, as if partially inverted; the bladder was healthy; and the peritoneal sur-

* On account of the length of wire required to encircle the tumor, two batteries were connected and used until a part of the mass was cut through, after which one was found sufficient.

faces all over remarkably pale and free from lymph deposits. The anterior vaginal wall, of which the uterus seemed to be a continuation, was next slit up to within an inch and a half of the fundus, when the partial inversion referred to became still more manifest, and was exactly central, each tubal opening being the lateral boundary of the depressed part.

*The tumor was now found to be not interstitial, but connected to the uterus by two separate attachments: one, the pedicle proper, springing from the right wall below the Fallopian opening, in diameter about two inches, and short; the other covering a great portion of the opposite side, and extending down the cervix to its junction with the vagina.**

This latter connection was evidently secondary, and the result of inflammatory action at some remote period. The vaginal surface of the tumor, from which a part had been excised, was covered with healty granulations, and the healing process remarkably far advanced considering the short time that had elapsed since the operation. The post-mortem tumor was not weighed, but appears to be not quite twice the size of that removed by the last operation.

As this paper has already far exceeded its proposed limits, and for other equally cogent reasons, my history of cases must close for the present. I have purposely endeavored to confine my remarks to a plain statement of such facts and occurrences as seemed to have a bearing on the value of the electric cautery in uterine surgery, including a description of the apparatus and instruments required, and rules for their practical application.

It is possible that the discursive manner in which my reports of cases and operations are given may be considered too inexact and disjointed; but I would state in explanation, that this paper is written less with a view to instruct students than for the information it may convey to active members of the profession; so that the dry daily record and minute details of cases, however useful and necessary to the one class, would be neither attractive nor profitable to the other.

Independently of this feature, however, I am fully aware that my clinical report, as a whole, is neither so full, nor by any means so complete, as could be wished; because, in addition to certain diseased conditions and operations therein described, and which in reality constitute but one-fourth of the whole number observed, there are many others of great practi-

* This adhesion of the tumor to the left side of the uterus undoubtedly resulted from the first attempt made at enucleation in September, 1869.

cal interest that might also be related did time and other circumstances permit.

Prominent among the latter might be mentioned chronic catarrhal, inflammatory, and ulcerated states of the intra-cervical mucous membrane—as a class, the acknowledged opprobrium of gynæcological surgery, but yielding readily and in most instances to one application of the electric cautery.* Nor indeed does recourse to such radical measures for these obstinate ailments demand the use of any anæsthetic; for patients have repeatedly declared that no more suffering attends or follows such treatment than is observed when any other active topical application is made. So also in regard to inflamed and granular states of the urethral membrane, always a source of intense suffering to the patient, and, so far as my own experience goes, but rarely even alleviated by the most judicious methods of treatment ordinarily employed.

Yet these painful affections also, when not seriously complicated with vesical lesions, have, in several instances lately met with, disappeared no less rapidly by the same proceeding.†

I regret that, on these points, nothing beyond this mere reference to the facts can be ventured at the present time; but an early opportunity may be taken to submit some clinical illustrations of what may be reasonably hoped for in such cases.

With regard to the value of galvano-cautery as a means of excising epitheliomatous outgrowths from the uterus, I think sufficient clinical material has been presented to demonstrate, beyond all reasonable doubt, its great superiority over every other mode at our command.

My reports also indicate pretty conclusively the boldness and freedom with which we may, by this agent, safely encounter disease, however intimately connected with vital parts, the security it affords against hemorrhage, and, what appears to me of even more consequence, the very remarkable immunity it would seem almost to guarantee against peritonitis, cellulitis, pyæmia, and other fatal sequelæ of intra-pelvic operations otherwise effected.

* In order to make such applications properly, the cervical cavity should be first well dried out by means of compressed sponge or cotton. The cervical cauterizer should then be introduced as far as may be judged proper, *and while cold*. The battery is next to be immersed, and during cauterization the instrument should be rolled half around and back, so that the parts may be equally and well brought under its influence.

† A similar proceeding to that advised for cauterization of the cervical canal should be adopted. The bladder must be completely emptied, and the urethra dried by cotton, before introducing the instrument. An anæsthetic is indispensable in these urethral cases.

As to the curability of cancroid diseases of the uterus by such radical measures as I have adopted and described, or the degree of permanency thereof reasonably to be hoped for, I have but little to add to the remarks already embodied in my reports. The statistics are, perhaps, as yet too limited, and, in most of my cases, the time that has elapsed since operative treatment is insufficient to warrant any very decided opinion one way or other.

It may not be presuming too much to say, however, that, judging from the apparently complete restoration to health in the great majority of patients so treated, though the condition of some was in the highest degree discouraging at the outset, I cannot hesitate to believe firmly that their ultimate history will warrant the most favorable conclusions in this regard. However, should future observation and more mature experience tend to dispel these hopes, and though cases now so full of promise should be found hereafter to have relapsed, it would nevertheless be some consolation to reflect that, in addition to having been instrumental in procuring respite from a painful malady, in no single instance had life been jeopardized by efforts made in behalf of these sufferers. Indeed, this latter remark is substantially applicable to some of the most hopeless forms of carcinoma when treated by galvano-cautery, as may be inferred from a perusal of case No. XII., and which is but one of several instances met with; for out of thirteen such cases operated upon, ten were beyond all doubt greatly relieved; and though three only were not improved, none were made worse.

The examples of carcinomatous disease of the uterus, either detailed or referred to in this paper, include nearly every variety described or met with, whether as regards their stage of development, the distinctive characters of their primary elements, or the tissues implicated. Hence it is needless to observe that, so far as the manifestly incurable cases were concerned, the parts involved or removed, the amount of relief afforded, and especially the extent to which life seemed thereby prolonged, varied in proportion to circumstances.

As to those of a less grave nature, they too, as may naturally be presumed, were of different forms and degrees of development, and consequently the steps and limits of operations proportionately varied.

Considering, therefore, all the facts observed in thirty operations, their subsequent progress, and inferences naturally deducible therefrom, the conclusion seems obvious that the electric cautery, when properly employed, is attended with less danger,

immediate or remote, and promises better results than can be claimed for any other method of surgical treatment yet devised for such ailments.

It would be interesting, and perhaps profitable, to notice some important points touching the distinctive morbid features characteristic of each case or group; but having neither space nor desire to indulge in pathological hair-splitting or the discussion of questions irrelevant to the subject under consideration, what has been already said must suffice for the present, and may be accepted as a brief résumé of my opinions and convictions. Before disposing of this section of my paper, however, and in conformity with its aim and spirit, I would venture to submit, for the guidance of others, the following aphorisms pertinent to the operative management of this class of cases:—

1. In all cases of induration, destructive ulceration, and outgrowths of the cervix uteri of a malignant nature, or believed to be so, and therefore warranting excision by galvano-cautery or other means, such operations should never be limited to the apparent line of demarcation between sound and healthy tissue, but must include the whole vaginal cervix at least, and even more if need be. (See Case I.)

2. When the shape of a part to be excised is such that a loop cannot be made to embrace it, a circular furrow for the reception of the wire may first be made by the cautery knife.

3. The wire-loop, knife, or other instrument should never be brought to a white heat when passing through superficial tissues or cellular growths. (See Cases XVI. and XVII.)

4. Traction on the part to be excised should be carefully avoided until the wire has passed well into the submucous structures.

5. The contraction of the loop should in all cases be very slow and gradual, *yet interrupted*, so as to insure a thorough cauterization of each stratum as passed through.

6. Towards the close of such operations, and as the circle of wire becomes small, let the amount of electricity be proportionately lessened.

7. Apply the knife to the spot intended to be cut *before heating;* and, if possible, be always provided with a duplicate of this little instrument.

8. Shun the use of persulphate of iron as a utero-vaginal styptic dressing, when possible, and, should any such agent be needed, substitute solutions of alum, or acetic acid, dilute or strong, as circumstances may warrant.

The history of a very remarkable case of fibroid tumor has been described at such length, and the three operations un-

dertaken for its removal in part so fully detailed, that but little need be said in addition to what is contained in the reports.

If, up to this time, proof has been wanting to convince the skeptical, and all who, on purely theoretical grounds, denounce certain forms of galvanic apparatus, because, as they say, their action is not sufficiently constant, these three operations amply furnish it. Others, too, who may have imagined, heretofore, that the galvanic cautery in surgical practice must necessarily be limited to small epitheliomatous or pedunculated tumors, fistulous openings, and birth-marks, will find for the first time how much wider its range of applicability may be extended.

That a highly vascular mass, fifteen inches in circumference, and situated within the pelvic cavity, has been successfully cut through and removed without loss of blood or subsequent inflammatory complications, is a circumstance in the history of galvano-cautery as suggestive as it is worthy of record.

The unfortunate occurrence that brought about a fatal issue in this case after the third operation, namely, exposure to cold, however deeply to be regretted, has nothing whatever to do with the merits of the operation, because up to the time of this accidental misfortune the patient was in a much better condition, and promised a more rapid recovery than at a like period after either of the two previous operations.

The report of an operation for the removal of an intra-uterine sessile fibroid (Case XIV.), exemplifies another and I believe safer means than that of enucleation, by which the removal of these tumors may sometimes be effected.

Avulsion or enucleation of intra-uterine fibroids is admittedly a hazardous, and at best a most difficult undertaking, because, though encouraging results have occasionally attended the efforts of some surgeons in this direction, the operation is one from which those who are best qualified to appreciate its dangers and difficulties will be most apt to shrink.

I am not aware that any successful attempt has been heretofore made to sever the connection of such an intra-uterine growth as that described in my case, by means of the electric cautery; and though the proceedings therein adopted may be found impracticable in some instances, a persevering effort, when it is deemed possible, would, I think, in a conservative sense, be proper and advisable.

The interest that attaches to the case of fibrous polypus springing from the fundus uteri (Case XV.) is due more to the diagnostic lesson it conveys than to the means by which its re-

moval was effected ; because an error in diagnosis, regarding its real point of departure from the uterus, would in all probability have been fatal to the patient. When this tumor was exhibited at a meeting of the New York Obstetrical Society, two examples of this fatal error in cases precisely similar were related,—one as having occurred in the clinic of Professor Scanzoni within the last two years, and the other in the practice of a prominent New York surgeon. In both cases the fundus uteri, being mistaken for the base of the pedicle, was extirpated, and the patients died in consequence.

Dr. Graily Hewitt,* referring to this subject, says: "When the polypus has a large basis of attachment, the fundus may be so drawn downwards that what appears to us the pedicle of the polypus is really the uterus itself. A specimen was not long ago exhibited at the Pathological Society, and referred to Dr. Marion Sims, Dr. John Ogle, and myself for examination, in which such a tumor had been excised, and a circular piece, comprising the fundus uteri, had been removed with it."

I have thought proper, also, to introduce another example of polypus (Case XVI.), the clinical features of which are no less peculiar and instructive than that last referred to. However, as certain inferences deducible from what was noticed in this case have been suggested elsewhere, and important principles, applicable to galvano-cautery, based on facts then observed, have been defined in aphorisms 3 and 4, no further remarks seem called for on the subject.

Case XVII. presents some interesting points for reflection, a few of which have already been glanced at in the report. I think this, as well as other similar cases met with, goes far towards establishing a fact in the clinical history of such ailments, as well as certain principles applicable to their management, of great practical value.

Thus, however successful Dr. James Henry Bennet, and others who accept his pathology and therapeutics of inflammatory and congestive uterine diseases, may have been in "melting down" voluminous cervices by potassa cum calce and other corrosive substances, the most thorough, and by no means superficial, destruction of such parts by the electric cautery, and subsequent copious purulent discharges, cannot be relied on as a remedy for nutritive hypertrophy of the cervix uteri. Moreover, I feel justified in concluding, from my own observation, that amputation of the cervix by galvano-cautery, as compared with local depletion, caustics, and escharotics, offers the quick-

* Diseases of Women, first American from second London edition, page 529.

est, safest, most painless, and by far the most successful treatment for this very numerous class of cases. Whether the explanation already given in regard to the elevated position and immobility of the uterus noticed in this case is the correct one, or likely to aid us in establishing some principle for our future guidance, will, of course, depend on further experience and the opinion of others.

This much, however, I may add: the circumstance, though probably noticed by others before, appeared so novel to me that I could not well avoid recording it, and the explanation and inferences are offered for what they may be deemed worth.

In concluding this brief summary of my clinical experience in galvano-cautery, I would simply remark that those who confine their appreciation of this invaluable agent in uterine surgery to its blood-saving properties, omit to take into consideration its most attractive and important attributes. These consist, first of all, in the peculiar manner in which this hæmostatic effect is produced on the vessels, and which I surmise is in no way analogous to that effected by ligature, torsion, écrasement, or styptics. Secondly, as there are no disorganized blood-clots or other effete material to become absorbed into the circulation, blood-poisoning, as I have before observed, need not be apprehended as a sequel of cautery operations.

In other words, it would appear that not only are the blood-vessels securely sealed up, but the lymphatics as well, and hence the immunity from hæmatoxic and inflammatory complications.

NOTE.—In the first part of this paper I was induced to promise, on behalf of instrument manufacturers, that certain defects in the construction of my speculum, of which I justly complained, would henceforward be remedied, and that the instrument would no longer continue to be made in defiance of every principle as explained in my original description of it. I regret to say now, however, that these promises and expectations have not been fulfilled. I have quite recently seen as worthless a specimen as it is possible to imagine exposed for sale in one establishment, and I am informed and believe that others equally useless are constantly being disposed of elsewhere.

Under these circumstances, I cannot let this opportunity pass without warning the profession against the purchase of these imperfect instruments. *When the outside measurement of the anterior blade, transversely, exceeds one inch and a quarter, the speculum cannot be used without considerable pain to the patient, and therefore ought to be rejected.* As to those who have already purchased these instruments, their only remedy is to insist on being supplied with such as are perfect, both as to principle and workmanship.

QUARTERLY REPORT ON OBSTETRICS AND DISEASES OF WOMEN AND CHILDREN

CONTRIBUTIONS TO THE CLINICAL HISTORY OF AFFECTIONS OF THE HEART AND VESSELS IN THE PUERPERAL STATE. By PROFESSOR HERMANN LEBERT. (*Archiv. für Gynakologie*, iii. 1, 1871; *Schmidt's Jahrbücher*, No. 4, 1872; *Ab. Med. Science*, Jan., 1873).

IN an appendix to Spiegelberg's work on the complication of the puerperal state with chronic affections of the heart, Professor Lebert remarks that chronic endocarditis with valvular defects not unfrequently occurs in girls in the second half of childhood, and more often in them than in boys of the same period of life. These affections, which generally consist in disease of the mitral valves, are developed after acute articular rheumatism and chorea, or often come on insiduously, and then sometimes without causing much disturbance. Puberty not unfrequently acts favorably on these affections, as by this condition the circulatory disturbances may be restrained; some cases, however, terminate fatally just before or soon after puberty. Congenital defect of the right side of the heart is a rare event. Professor Lebert has seen but one case; in this the cause of death was congenital stenosis of the aorta near the ductus botalli. Professor Lebert advises against marriage in cases where compensation-lesions are present, because upon these lesions the conditions of pregnancy and lying-in may act very unfavorably. Not only do the compensation-lesions come on more readily, more rapidly, and with greater intensity during pregnancy, but the valvular endocarditis, which may be developed in the second half of pregnancy, shares with puerperal endocarditis a tendency to breaking up of deposit and the formation of secondary emboli. The three following cases are reported by Professor Lebert as examples of this:—

CASE I. The patient, a pregnant woman twenty-one years of age; acute articular rheumatism in the fourth month of pregnancy; signs of mitral endocarditis; repeated attacks of shivering; symptoms of embolism in the left upper and in the right lower extremities; abortion; death from pulmonary œdema. *Autopsy.* Endocarditis with ulcerative breaking down

of mitral valve, embolic plugging of the subclavian artery, the termination of the aorta, and the commencing portions of both common iliacs.

Case II. The patient, a woman thirty-six years of age, just delivered for fourth time; child dead; in the evening strong shivering, severe puerperal fever, intense dyspnœa with abundant rhonchi and a bellows-sound over the tricuspid valve; death.—*Autopsy.* Suppurative inflammation of the tricuspid valve, a large embolus in the right branch of the pulmonary artery, with suppurative inflammation of the same.

Case III. Patient twenty-four years of age; an abortion fifteen months before; afterwards two abortions at the sixth month of pregnancy; peritonitis on the left side, at a later period left side, and then right side pleurisy, and symptoms of more profound inflammation; swelling of the right knee and left elbow-joints; death in twenty-four days.—*Autopsy.* Embolism of pulmonary artery, double pleurisy, gangrene of the right lower pulmonary lobe, thrombus in the inferior vena-cava, plugging of the left renal vein, periovaritis on the left side, periuterine suppurative phlebitis, endometritis, suppurative inflammation of the right knee-joint, chronic ulcer of duodenum.

In puerperal pyæmia and septicæmia the mechanico-embolic mode of extension of process has, according to Professor Lebert, been thought too much of, whilst the inflammation of the venous walls—purulent phlebitis—has, on the other hand, been too little regarded. Multiplicity of the inflammations in the puerperal state exists not unfrequently without any evident dependence on continuity; the actual lesion may be produced through molecular detritus as well as through thrombolic and embolic infarction, to which Professor Lebert opposes a non-infecting plugging through thrombosis and embolism and their results. Professor Lebert thinks that no light will be thrown on this obscure subject before every exclusive theory has been renounced, and before one has ceased to confound under the name of puerperal fever a number of pyæmic processes which should be separated. One must by puerperal fever either understand quite generally *every* febrile process occurring in the puerperal condition, or quite specially only endocarditis with methrophlebitis and septicæmia.

On the Secondary Signs of Pregnancy. By Professor C. Hennig, of Leipsic. (*Memorabilien*, xvii. 1, 1832; *Schmidt's Jahrbücher*, No. 6, 1872. *Ab. Med. Sciences*, Jan., 1873.

The less certain and secondary signs of pregnancy are of special consequence, for the reason that in the early months of preg-

nancy, when the signs of the first rank are absent, they are the only obtainable phenomena. These secondary signs may be divided into those that are essential and those that are non-essential; to the former belongs distension of the fœtal coverings —balonnement, which is never absent, but which, during the early weeks of pregnancy is indistinct. In cases of extra-uterine pregnancy may be observed a simultaneous increase of the abnormal coverings of the fœtus, and a sympathetic increase in size of the uterus, which progresses equally with the former until the end of the third month. With flexion or version, and also with hypertrophy of uterus, the balonnement occurs earlier, and is more evident.

To the second division of those signs which may be absent, or which may be present, when there is no pregnancy, belong —(1) relaxation of the vaginal portion of the womb; this was absent in one-tenth of the cases registered by Professor C. Hennig, and in these exceptional instances the woman had suffered from parametritis in previous confinements; (2) the transition of the os uteri from a transverse slit to an orifice of a rounded form; this frequently fails, especially in multiparæ; (3) the murmur of pregnancy, which is first heard after the third month; this murmur is not always necessarily transferred to the iliac and epigastric arteries, but in many cases to the uterus itself; (4) the bluish red or brownish red coloration of the vaginal portion of the womb and of the upper portion of the vagina; this coloration is sometimes limited to the os uteri; in hypertrophy of the pregnant womb it may be quite absent; Professor Hennig has not unfrequently observed this condition during a catamenial period in a non-pregnant woman.

According to Naegele and Luschka, after one or more labors the uterine cavity loses its triangular form and becomes oval, with which change the upper border, according to Naegele, and the lateral borders, according to Luschka, remain convex invariably. Numerous post-mortem examinations have convinced Professor Hennig that in the seventh week after delivery the cavity of the body of the womb again presents the form of that of the virgin. The coronal as well as that of the sagittal segment with cavity is oval whether the woman has been pregnant or not, when the uterus, especially in consequence of contracted or closed os uteri, contains viscid fluid or incloses a morbid growth.

On the Elimination of the Puerperal Poison. By M. Hervieux. (*Medical Times and Gazette*, November 23. *Ab. Med. Sciences*, January, 1873.)

M. Hervieux read last month at the Académie de Médecine an interesting paper upon "Elimination of the Puerperal Poison." He observes that, while there are but two channels for the introduction of this (the uterine in a few cases and the pulmonary in the vast majority), the channels of elimination are numerous. First among these is the gastro-intestinal. Vomiting is, in fact, one of the earliest symptoms of this poisoning; and M. Hervieux has seen many cases in which all danger seemed to have disappeared after spontaneous vomiting. Diarrhœa acts in the same way, and is *solidaire* to the vomiting; so that if one of these becomes suppressed by medicinal agents the other takes its place. It is true that vomiting and diarrhœa often aggravate the patient's condition; but this only shows that the economy becomes exhausted during the immoderate efforts which it makes to deliver itself of the poison. The biliary secretion concurs also most powerfully in the eliminatory action, and especially during epidemics. During these we find patients who, after having rejected by regurgitation, without effort and almost incessantly, an inspissated bile as green as boiled spinach, present after death nearly a litre of the same matter in the stomach, intestine, and gall-bladder. Orfila established the fact that the liver is the place of refuge by predilection for mineral poisons, the organ in which they are accumulated in the largest proportions. Such accumulation of the puerperal poison has probably something to do with the fatty change of the tissue of the organ met with in lying-in women.

The lochial discharge is of scarcely less importance in this elimination. The ancients exaggerated its importance by explaining all puerperal affections by its suppression. They, in fact, mistook the effects for the cause. But that the lochia serve as a vehicle for the deleterious principle is shown by the fact that their fetidity and abundance attain proportions in some cases that neither the general nor local condition of the patient explains, and that such fetidity and abundance coincide with diminution of temperature and pulse, with an improved countenance, a return of sleep and appetite, etc. The skin participates less often and less actively in the elimination, its intervention taking place especially in the severer cases, when it may be manifested either by profuse sweating or miliary eruption. M. Hervieux has had some cases in which the profuse sweats have persisted uninterruptedly for several days, and have thus conjured the most serious dangers. In these cases the secretion loses its acidity and becomes alkaline. Instances of miliary eruptions preceding a favorable termination of dangerous cases are too well known to require to be insisted on; but

both these and profuse sweats are too often also accidents of the ultimate stage of the disease, and, occurring then under desperate circumstances, we cannot expect that they would operate a cure. The surface of blisters may in some cases, also, open an issue for the puerperal poison; and M. Hervieux refers to cases in which, without anything existing in their condition to account for it, blisters exhaled a horrible fetidity. In these, apparently under the influence of such exhalations, sensible improvement took place, the pulse approaching its normal condition, etc.

We have thus far had to deal with the natural channels; but in other cases, to use a term of M. Ricord's, an "affraction" may be advantageously established. This results from the spontaneous or artificial opening of purulent collections, and especially when these are peripheric. Every accoucheur knows that the development of an abscess of the breast may often arrest peritonitis, uterine phebitis, or diffuse phlegmon; that abscesses of the limbs possess the same power of diverting a serious inflammatory menace from the viscera; and that even arthritic manifestations in like manner determine morbigenous action upon organs which are at a distance from the pelvi-abdominal sphere. The practice of maternity cannot be long followed without its being discovered that these different affections are not merely local, but that they are the expression or result of the efforts made by the economy to repel the evil from the centre towards the periphery, rendering the elimination of the toxical principle more inoffensive at those remote points. The success of such efforts is subordinated to the intensity of the epidermic movement; for if it were otherwise, how comes it that in certain years the most painful chaps, or the deepest fissures never give rise to abscess of the breast, while at certain epochs this organ becomes the seat of purulent formations in the greater number of puerperal women, whether they have chaps of the nipple or not? Experience has taught us that we should regard these peripheric manifestations with satisfaction—first, because they are an indication of the amelioration of the sanitary condition of the establishment; and next, because they provide in the individual cases an additional chance for the elimination of septic matter.

On the Influence of Neighboring Organs on the Position and Involution of the Puerperal Uterus. By Dr. Wilhelm Pfannkuch, of Marburg.—(*Archiv für Gynakologie*, iii. 1872; *Schmidt's Jahrbücher*, No. 7, 1872.)

1. The uterus, during the lying-in and also before the puerperal period, presents generally a bending of the fundus to the

right side, with rotation of the posterior border forwards; this disposition is already consummated in the fœtal condition, and is, indeed, to be referred to the first development of the pelvic viscera.

2. This disposition is favored during extra-uterine life, by the pressure of the viscera, especially of the rectum, and by the effects of gravity with right side decubitus. This latter cause acts especially during pregnancy and the lying-in.

3. When the bladder of a lying-in woman is filled, it presses the uterus upwards and to one side.

4. This effect may be produced by a relatively small quantity of urine (about 70 cubic centimetres).

5. The separation of the fundus from the symphysis and also the angle of lateral deviation generally increase in direct proportion to the distension of the bladder. On an average 100 cubic centimetres of urine elevate the uterus by one centimetre.

6. Large quantities of urine elevate the uterus to a relatively less degree than small quantities, in consequence of the increasing lateral deviation and the less rapid increase in volume of the bladder.

7. The lateral direction of the uterus is, as a rule, to the right side, because from the first it lies more or less on the right side, forcing the bladder over towards the left side. Here gravity, according to decubitus, has great influence, and may readily reverse this relation of phenomena.

8. Distension of the rectum above the sphincter elevates the uterus, and therewith favors bending towards the right side. The chief cause, however, is always the disposition acquired through the development of the uterus, and next to this there is the influence of gravity.

9. The post-partum enlargement of the uterus is apparent, and, when there is no hemorrhage, is caused by filling of the bladder.

10. In normal involution, the uterus diminishes continuously without any important deviations in position. Certain disturbances may affect this process of involution, and then deviations in position may occur as complications.

11. Retention of urine by itself gives rise neither to after-bleeding nor to faulty involution during the lying-in; when both these are present together the common cause generally lies in the course of the pregnancy and birth. It is at the most an occasional cause with relaxed uterus.

12. Even after the completion of involution the dependence of the uterus as to disposition of the degree of repletion of neighboring organs may, though in a modified manner and to a slight degree, be still made out.

On Puerperal Septicæmia. By M. A. D'Espine. (*Archives Générales de Médecine*, Octobre, 1872.)

1. Puerperal septicæmia is constituted by a series of symptoms more or less severe according to the dose of septic material absorbed by wounds on the walls of the utero-vaginal canal.

2. These symptoms present nothing that is special to the puerperal condition, and may be assimilated to those which are caused by septicæmia in wounded subjects and in animals.

3. The starting point is always in the uterus or vagina; all the causes which prevent cicatrization of the uterine wound and which favor the development of septic materials on its surface, are efficient causes of puerperal septicæmia.

4. The lymphatics are the habitual road of the absorption of the poison; lymphangitis is the usual, but not a necessary, indication of its passage.

5. *Peritonitis* is an associated lesion due to the transmission of septic material by the uterine lymphatic vessels; it may be compared to local inflammations which are developed around infected wounds.

6. The effect of septic absorption on the organism is to determine congestions and inflammations in all organs, especially the lungs, kidneys, and intestines; subserous ecchymoses or interstitial apoplexies, internal or external inflammations localized by preference in serous membranes; *during life* this action is manifested by fever, diarrhœa, pulmonary congestion, epistaxis, and often by tempotary cutaneous eruptions.

7. Purulent absorption and septic absorption may be confounded by the bedside.

8. There is no such affection as milk-fever; the fever of the first week is almost always a slight septicæmia due to an absorption of the lochia by small wounds on the walls of the utero-vaginal canal. When the uterus does not contract and the lochia remain fœtid, this fever may persist for some weeks. In cases of this kind one may almost always find ulcers in the neck or vagina.

9. These slight infections are often, but not always, accompanied by uterine angioleucitis and signs of mild perimetritis. When the infection is prolonged it may lead to consumption and death (septic phthisis).

10. Puerperal *pyæmia* is a complication of septicæmia, and almost always coincides with suppuration in the veins of the uterus.

This complication, which is relatively rare, is due in all probability to septic emboli.

Visceral metastatic abscesses are tributary to this, whilst all inflammations of the cellular tissue and of the articulations are due to lymphatic infection, and are not embolic in their nature.

SOME RESEARCHES ON INFANT DIGESTION. By PROSPERO SONSINO, M. D., PISA, Editor of the Medical Newspaper, the "*Imparziale*," of Florence. (*London Practitioner*, Jan., 1873.)

IN an article published in the *Practitioner* of last September, I gave an account of some physiological researches, which, with other arguments, brought me to establish the existence of a physiological or normal dyspepsia to starchy food in the first portion of infant life. Since I have published that article, I thought convenient to institute another series of researches, in order to bring forward not merely more evidence of the existence of that dyspepsia, but to establish also, if possible, the limit of age in which it ceases. This new series of researches was directed to the examination of the motions of infants that were fed with starchy aliments with the object of recognizing if they contain unaltered starch. It is clear that by finding starch in the motions, we can infer that it did not find conditions for being well digested. The tests used for discovering starch were iodine, which gives a characteristic blue color with starch, and the microscope, by which we discover the granules peculiar to the same matter.

The researches of which I speak were made, at my suggestion, at the East London Hospital for Sick Children, which I have frequented during my stay in England; and I am indebted for their execution to the courtesy of Dr. McGrath, resident medical officer in that hospital. Though few in number, I wish to publish them, to invite our *confrères* to repeat them, and illustrate more the subject which, in my opinion, is of paramount importance in the hygiene of infancy.

I will begin by giving the result of one case tried at Basel, where I passed some days during last September; and then I will give an account of the others in the order in which the experiments were made by Dr. McGrath.

CASE I.—Infant, aged three months; came into the *Kinder Spital* of Basel in very bad condition with atrophy for want of convenient food. It was fed then with Nestle's powder, a milky compound, which, analyzed by Dr. Riescher, of the Basel University,* was found to contain only a little quantity of starchy matter, being principally composed of nitrogenous

* The analysis of this food is given in *Correspondenz Blatt für Schweizer Aerzte* of September, 1872, p. 366.

matter and sugar. This Nestle's Powder, being conveniently boiled is much used now in Switzerland for infant feeding. The motions of the little infant, tested by Mr. Oeri, the house surgeon, with iodine, gave the characteristic blue color, and the presence of starch was confirmed also by the microscope. This is the only case I had the opportunity of trying in Basel.

Case II.—Sarah Grey, aged sixteen months, received as in-patient in East London Hospital for Children, being affected with enlargement of glands of the neck, and advanced atrophy, with diarrhœa. She took for some days in her food some of a compound called *lactose*, prepared by Messrs. Darby & Gosden, Chemists, 140 Leadenhall Street, containing a certain amount of starchy matter. The motions of this child, notwithstanding that she was affected with diarrhœa, did not manifest presence of starch with iodine, and thus we must conclude that she was capable of digesting starch.

Case III.—Arthur Read, aged five months, healthy, received as in-patient in the hospital, only for club-foot. It suckles from the mother, but after giving it for two days some *lactose*, in the subsequent motions we find manifested the presence of starch by a strong blue color obtained with iodine.

Case IV.—Martha Jessop, aged fifteen months, fed with milk and beef-tea, to which was added some *lactose*. The examination of the motions does not give sign of presence of starch after the use of the *lactose*, and then we inferred starchy matter was digested.

Case V.—E. Collonson, aged five years, convalescent from pneumonia; used starchy food. His motions show to the test of iodine presence of starch; but the blue color was not so intense as to give evidence of large amount of starch.

Case VI.—John Crutchfield, three years old, suffering from empyema and rickets; fed with milk and starchy articles. Its motions offered strong evidence of the presence of starch.

Case VII.—Emily Murdoch, aged twelve months; takes milk and corn-flour. The motions do not give any blue color with iodine. Therefore we infer that starch was digested.

Case VIII.—Elizabeth Brown, aged three months; takes mother's milk, and twice a day some bread with animal milk. The motions give strong evidence of the presence of starch, which we recognized too with the aid of the microscope. Therefore it must be inferred that it is not digested, or only partially so.

Case IX.—W. G. Dorrill, aged four and a half months, its food being of corn-flour, groats, and milk; child was not reared

from the breast. The motions with iodine give the known blue color, and the presence of starch was also recognized with the microscope in large quantities.

Case X.—Eliza Emary, aged ten months, fed with beef-tea and yolk of eggs with milk, to which has been added one teaspoonful of arrowroot twice a day. The examination of the motions does not give distinct evidence of the presence of starch, but a few bluish spots appeared in test-tube with iodine, and we can infer that a very little starch was present.

The following table shows the results of the experiments above referred to:

Age.	No. of Cases.	Result.
3 to 5 months . . .	4	Starch in motions.
10 months	1	Starch in motions not quite clear.
12 to 16 months . .	3	No starch in motions.
3 years	1	Starch in large quantity.
5 years	1	Starch in small quantity.

I do not draw any new conclusion from these researches, as it seems to me that they are too few, but they will afford subject matter for future investigation.

Digestion of Starch in Infancy. (*Gaz. Med. Ital.*, November, 1872.)

It has been known that the saliva of newly born animals has not the power of transforming starch into sugar. A recent experimenter has taken the pancreas from kittens and puppies, and has ascertained that the pancreate juice in these animals when young is, like the saliva, incapable of converting starch into sugar. The bearing of this fact on the practice of giving starchy food to very young infants is obvious.

REVIEWS AND NOTICES OF BOOKS.

A Treatise on the Theory and Practice of Obstetrics. By Wm. H. Byford, A.M., M.D., Professor of Obstetrics and Diseases of Women and Children in the Chicago Medical School, &c. 2d edition, thoroughly revised. New York: Wm. Wood & Co., 1873. pp. 469.

As stated by the author in the preface, this book is intended to contain only "the practical information necessary to guide the student and 'busy practitioner' in the acquirement and exercise of this important branch of our art," and so far as the accomplishment of this purpose alone goes, we will allow that the attempt has been quite successful. A compendium of Obstetrics should, however, and can, contain a great deal more than Dr. Byford's book does, and we cannot but express the wish that a little more mention had been made of the history, pathology and etiology of the various subjects; that this would be of interest and utility, even to the "busy practitioner," and still more so to the student, lies beyond doubt, and that it can be done without overstepping the limits of a concise treatise, or detracting from its practical value, has been demonstrated by Prof. Karl Schroeder, of Erlangen, the third edition of whose "Lehrbuch der Geburtshülfe" appeared last year, and the English translation of which is now in press. That Prof. Byford's book did not fill the void in the modern obstetrical literature of America and England, and did not quite come up to the latest advances in physiological and scientific midwifery, is an opinion expressed to us nearly a year ago, by a well-known Professor of Great Britain, and sufficiently demonstrated by the translation of Schroeder's work.

We would not wish to be understood, however, as condemning this book, but simply wish to state our impression that the theoretical portion of it has been somewhat neglected, while in the practical and therapeutical part we find a great deal of useful information, and, as a rule, opinions and statements consistent with and based upon the most recent and generally approved principles. As an exception to our unfavorable criticism on the theoretical part, we should mention the chapter on the "Female Organs of Generation," and "Generation," in which the anatomical relations of these organs, and the physiological changes taking place in them during ovulation and generation, are clearly and admirably described. Six pages and six dia-

grams are devoted to the description and illustration of the author's pelvimeter, a modification of Baudelocque's callipers, with one branch so bent and constructed as to allow of its introduction into the vagina, and the measurement of the thickness of the anterior, posterior and lateral pelvic walls. To corroborate the results of digital measurement, we suppose it may be of use, and be considered an improvement on Baudelocque's instrument.

The author's opinion, expressed on page 53, that the "cervix also becomes shortened, the upper and lower ends approaching, and a fortnight before labor, the internal os gives way and expands," etc., is contrary to the now generally accepted view, that the cervix does not become shortened at all during pregnancy but is rather drawn out a little; that the internal and external os do not approach each other; that the internal os may in multipara expand slightly during the last weeks of pregnancy (especially if the fœtal head be the part presenting, and press heavily on the lower segment of the uterine cavity), but generally not before the first labor-pains have appeared; and that consequently the distance between it and the external orifice is in no way diminished, and that the apparent shortening is confined to the anterior lip, and is caused by the protrusion of the lower anterior wall of the uterus by the presenting head. The contractions of the uterine muscular fibres are stated as being of a two-fold nature: clonic, intermittent, expulsive, in fact, the actual labor-pains; and tonic, elastic, incessant, unconscious contractions, by which the shortened condition of the muscle is maintained when intermittent contraction has ceased, by which the uterus is prepared for the commencement of labor at term, by which hemorrhage post partum is prevented, and the process of involution initiated.

The author appears to incline somewhat to the glandular nature of the maternal placenta, as claimed by Prof. Ercolani, of Bologna. Under the "Symptoms of Pregnancy" we find mentioned a species of marks, resembling cicatrices, which appear on the abdomen in various directions and spots, which persist some time after pregnancy, and are characteristic of that condition. (This description is anything but clear and correct. These marks are *generally* found after the sixth month, when the distention of the abdomen has attained a certain degree; they are caused by the rupture of the rete Malpighi of the skin, and, like all freshly lacerated wounds, have a reddish appearance, and an irregular jagged form; they are found all over the abdomen if the distention be very great, but generally most distinctly at either side of the linea alba below the umbili-

cus, sometimes extending down to the groins and thighs; after delivery they gradually heal and become whitish glistening cicatrices, which, if they were of any extent, never disappear, and remain lasting signs of a previous abdominal distention, not necessarily of utero-gestation however, for we have seen them in a moderate degree in large ovarian tumors, ascites, and even in simple obesity, where the distention of the skin had not been able to keep pace with the rapidly accumulating adipose tissue. Of course they occur most frequently in pregnancy, as this is the most frequent cause of abdominal distention; the red marks in these cases are the fresh ones, and prove an existing or but just finished pregnancy; the white glistening marks are evidences of previous utero-gestation. In a multipara, of course, both are often found together.—*Reviewer.*)

We are glad to see the principle so decisively enunciated in the following sentence, which is so much infringed upon in this country: "The ovum, the embryo, the fœtus, infant, child, man, are only the same living being in different stages of existence. . . . It is, therefore, as much murder, morally, to arrest the vital action in an ovum an hour after fructification as it would be to strangle the newly-born infant."

The author, as we think justly, deprecates the active treatment by caustics, injections, &c., advocated by Bennett and Whitehead for chronic inflammations of the uterus and cervix during pregnancy, and advises milder remedies, such as sitz-baths, injections, water-compresses over the uterine region, anodynes, etc., without strong local applications.

Contrary to Carl Braun and some others, the removal of the placenta in abortion, if the os be open or easily dilated by the finger, is recommended, in accordance, I think, with the opinions of most authorities; force, of course, should neither be used in dilating nor in the removal of the placenta. The comparatively small size of the uterus in abortion-cases, and the ease with which it can generally be pressed towards the vulva by the hand on the abdomen, or retroverted into the hollow of the sacrum, ought hardly ever to require the use of an instrument for the extraction of the placenta. "Labor is divided into three stages: The first is completed when the os uteri is sufficiently dilated to let the fœtus pass, and the membranes are ruptured; the second begins at this time, and ends in the entire expulsion of the fœtus; the third consists in the expulsion of membranes and placenta." This division of the act of labor is also given by Schroeder, loc. cit., and is much superior to that adopted by Scanzoni, where the first stage is the preparatory, the second the dilating, and the third the expelling stage of

child and secundinæ. The mechanism of labor, that most difficult problem, which various German authors have of late been attempting to simplify with the result of making it still less comprehensible, is described according to the doctrines of Naegele, whose theory so far has not been refuted and appears to answer all reasonable expectations. Scanzoni's axiom, that "the longest diameter of the head always places itself in the longest diameter of the pelvis," during its passage through that canal, is perhaps the most simple way of expressing the mechanism of parturition. The now generally recognized theory of the *spiral movement* of the fœtal head through the pelvis is also adopted by Prof. Byford. Scanzoni says: The head makes five distinct movements in its passage through and out of the pelvic canal: 1. The descent through the various cavities of the pelvis; 2. A rotation on its transverse axis, whereby the posterior fontanelle descends towards the floor of the pelvis; 3. A rotation on its perpendicular axis whereby the posterior fontanelle approaches the symphysis pubis; 4. A second rotation on its transverse axis whereby the anterior fontanelle descends to the floor of the pelvis on a level with the posterior, in reality an extension; and 5. A second rotation on its perpendicular axis caused by the passage of the shoulders, whereby the face is turned towards the thigh of the mother.

The diagnosis of pregnancy by inspection, palpation and auscultation is discussed with some detail, as it should be; but the diagnosis of the various positions of the fœtus by the same means is but briefly touched upon, and certainly not stress enough laid upon the appearances peculiar to each fœtal position. This is a species of obstetrical manipulation which, judging from what we have seen and heard, appears to be as much neglected and as little generally practised in this country as it is universally esteemed, used and taught in Germany. The diagnosis of doubtful presentations or of multiple pregnancy is often possible only by the aid of external palpation and auscultation.

The author, in accordance with most modern obstetricians, believes that "old primipara have more tedious labors than younger women." This fact he does not attempt to explain; as far as we are aware, it is owing, partly to the greater firmness and diminished suppleness of the tissues peculiar to increasing years, but principally to the fact shown by numerous measurements and statistics, that the older a primipara is the greater are the relative diameters of the child's head, and the more difficult, of course, the delivery. This increase of the diameters of the fœtal skull is also found to take place, in most

multiparæ, as a rule, with every new delivery; hence we occasionally find women with contracted pelves whose first deliveries were comparatively easy, going on from worse to worse until, finally, the child presents itself with a head so large and hard as perhaps to cost the woman her life. Dr. Byford recommends the support of the perinæum with the hand when the presenting part presses down on it, and says: "The object is not to retard the passage of the presenting part, but to mould, or rather assist the perinæum in guiding it along the curve of the perineal axis." He considers the actual benefit of this procedure as regards the prevention of a rupture as rather doubtful, but would still advise its being done, to avoid the reproach of the patient and her friends as well as for the personal satisfaction of the medical attendant. If the perinæum is too rigid, too long, or diseased, or if the head is too large or descends too rapidly, the rupture will occur, no matter how much the perinæum is supported; if the parts are all normal no rupture will take place, even if the support be neglected. This, we know, is also the opinion of Scanzoni; but still we cannot help thinking that there are cases (and we believe we can remember several such) where by judiciously moulding and retracting the perinæum over the head and softly pushing the latter towards the symphysis an imminent rupture may be prevented entirely or its extent much diminished if it does happen.

The quotation from the Richmond and Louisville *Journal*, p. 220, would seem to suggest that the jaundice, colicky pains and diarrhœa, which so commonly occur during the first week of infantile life, are owing to the ligation of the umbilical cord, inasmuch as those babies whose cords were not tied, while not suffering from hemorrhage, were not affected by these disorders. It would be an interesting subject for further investigation, to discover whether the sudden cessation of the umbilical circulation and the consequent engorgement of the liver with blood are, in some way, the cause of this infantile icterus; all explanations hitherto given still leave this point doubtful.

The author very sensibly recommends dressing the new-born infant as lightly as possible, in order not to cramp the free movements of the limbs, but surely does not mean to favor the injurious habit of keeping the baby in bed with its mother. This is a practice good neither for the child, which becomes chilled and more liable to cold and other external influences thereby, nor to the mother, who loses her rest unless she would risk suffocating her child during sleep. The child should be taught from the first to occupy its own cradle, when it is not being nursed or carried about.

A very full account in pp. 252–76 is given of the management of the breasts during pregnancy, lactation, and in various pathological conditions.

The indiscriminate administration of ergot in tedious labor is very wisely cautioned against, and attention called to the undoubted toxical effects of the drug on the child and the liability to rupture of the uterus, vagina or perinæum, owing to the violent incessant contractions produced by it.

Chloroform and ergot are recommended to be administered at the same time, and their action thus combined is very favorably spoken of. (The proper time to administer ergot is immediately before or after the passage of the child's head, to prevent possible hemorrhage post partum and aid the speedy expulsion of the placenta.—*Reviewer.*)

The deformities of the pelves, their various classes, degrees, and importance, are not treated of in the thorough and scientific manner we should and ought to expect in a book like Dr. Byford's. Various forms of pelves are entirely omitted, such as the spondylolisthetic, kyphotic, funnel-shaped, oblique anchylotic and transverse anchylotic, and none of them are thought worthy of more than a very imperfect general description. Schroeder devotes 108 pages to the discussion of deformed pelves and the pathological conditions and therapeutical indications dependent on them; Byford barely 5 pages!

A frequent and speedy use of the forceps is recommended "when labor is becoming tedious and all the conditions of the organs exist necessary for the easy introduction and adjustment of the forceps;" this is very sensible advice, endorsed as it is by the statement "that many children are thus (by the administration of ergot) sacrificed, which might safely be delivered by the forceps." A practitioner who is skilled in the use of the forceps will do no harm whatever by its frequent application; an unskilled physician becomes skilful the oftener he uses the instrument; why should we therefore allow the mother to suffer and become needlessly prostrated? To perform a dangerous operation unnecessarily is certainly wrong, but an easy extraction with the forceps to save a woman from suffering and prostration is neither unnecessary nor dangerous. We are glad to see the author advocating the position on the back in applying the forceps, instead of the inconvenient and in no way preferable position on the left side.

The author advises oblique application of the forceps when the head is in the pelvic cavity and before the vertex has turned toward the symphysis, and changing the blades, if they do not turn spontaneously, to the sides of the pelvis when the peri-

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The author advises oblique application of the forceps when the head is in the pelvic cavity and before the vertex has turned toward the symphysis, and changing the blades, if they do not turn spontaneously, to the sides of the pelvis when the peri-

næum becomes distended. This is entirely unnecessary; if the forceps are regularly applied in the transverse diameter of the pelvis, the head will turn spontaneously within the blades as it is pulled down; if desired, the forceps may be applied in the oblique diameter and a single rotation be made, but this is seldom required. As for the double application and the "double rotation" of the forceps recommended "when the vertex is to the right sacro-iliac junction and the forehead to the left groin," we should not advise any one to try it. It is very difficult, dangerous to the mother, and quite unnecessary. Scanzoni, who first described and advocated these rotations with the forceps in Germany, has since, by verbal communication to us (although he has not mentioned this change of opinion in the last edition of his Obstetrics, 1867), entirely discarded them. After once performing the single rotation a number of times, we tried the double rotation and succeeded after some difficulty; there were, however, two rents in the vagina, which nearly cost the woman her life. In such a case it is much better to introduce the forceps in the regular transverse diameter and extract with the forehead under the pubes. We have never tried the short forceps as recommended by Dr. Byford, but must admit that his plan looks feasible, although we cannot but object to the dangerous rotation he proposes.

The curved forceps are much better introduced and manipulated when the body of the child is held over the abdomen of the mother in breech or footling presentations, than when it is depressed between the thighs.

We cannot help regarding the particular mention and recommendation of the "Obstetric Extractor" of Dr. John Evans, of Chicago, as merely a piece of courtesy on the part of the author. The days when the fœtus in utero was fished for with nets are surely past.

The vectis or lever is *not* called a *spoon* by the German obstetricians. Scanzoni, Schroeder, and all the other authors we have ever read, call it "*Hebel*," which means literally "lever." The blades of the forceps are called spoons, *Löffel*, however.

No mention at all is made of the trephine as a perforator of the fœtal head, nor of the different forms of cephalotribes, their advantages and faults. The diagram given of the cranioclast is not that of Simpson's original instrument, but of one improved in Vienna. The latest improvement (described at length in this number of the Journal) does not appear to be known to the author, notwithstanding its frequent successful employment in Vienna and the account of it published two years ago by Carl Rokitansky, jr.

Are the chances of tympanites uteri and septicæmia not rather imminent "when we have awaited the effects of decomposition, and when twenty-four or forty-eight hours' delay, after the fœtus has been very much mutilated by instruments, in the warmth and heat of the uterus, have lessened the resistance of its soft parts and enabled us to enucleate the bones from their attachments and remove them when impossible without"?

The key-hook (*Schlüsselhaken*) of Carl Braun, solely used in Vienna for the purpose of decapitation, receives no mention. It is a blunt-pointed hook, bent at an acute angle, by which the neck is firmly caught and the vertebræ and soft tissues are broken and lacerated by twisting and rotating the handle. The chief advantage is the absence of danger to the mother.

The value of external examination for the diagnosis of preternatural presentations is pointed out, and the possibility and mode of version by external manipulation described. Prof. Wright's opinion on the position in turning (p. 362), is by no means new. In Germany, in all cases of difficult turning, particularly where the feet are situated in the anterior portion of the uterus, the side or the knee—elbow positions are adopted as a matter-of-course. Dr. Byford recommends, in turning, the introduction of the hand corresponding to the side where the head of the fœtus is situated (German method); Scanzoni advises the hand corresponding to the feet of the child (French method), but states that in most cases version will be easily performed with either hand, and that the choice of the hand to be introduced must depend on the peculiarites of each particular case. In the description of difficult version we miss the mention of the so-called "double manipulation" (*doppelter Handgriff*), where a piece of tape is attached to one foot, which has been pulled down, and steady traction made on this, while the other hand is introduced into the uterus, and the presenting part, head or shoulder, pushed upwards and out of the pelvis. This manipulation will occasionally be found very serviceable in impaction of the presenting part and when the liquor amnii has been long discharged.

The legal enforcement of gastro-hysterotomy after the death of a pregnant woman, is strongly recommended; in Germany the operation is compulsory, no matter how long a time has passed since the death of the mother, in every case of death after the sixth month of utero-gestation, *i. e.*, when the fœtus has attained a viable age.

In our judgment the author's opinion on the treatment of placenta prævia is quite correct. He thinks it is overtreated, and recommends less readiness to turn, but all measures to arrest or prevent the hemorrhage (particularly the tampon, air-bag

or colpeurynter), and advises an artificial termination of the labor only when the powers of nature prove insufficient. If we can arrest the hemorrhage in time, before the woman has become exhausted, there is generally no reason why we cannot quietly await the spontaneous delivery, unless the condition of the fœtus or unforeseen occurrences compel us to interfere; unfortunately, very frequently we only see the case after profuse hemorrhage has taken place, and are then compelled to hasten delivery for the sake of the mother. An easy version, besides, is not likely to injure the mother.

As a temporary expedient against uterine hemorrhage, Dr. B. recommends compression of the aorta, to prevent the blood from being thrown into the uterus. Scanzoni opposes this proposition on the ground that we cannot compress the abdominal aorta alone, but are almost certain of stopping the circulation in the vena cava ascendens also, which lies to the left of and under the aorta, and thus cause a retention of venous blood in the uterus and an increase of the flooding, the very reverse of what is intended.

The diagrams are numerous, and for the most part excellent, particularly those in the chapters on the Organs of Generation and Generation; an exception is that of the cephalotribe, on page 344, where the instrument looks as if it had a lateral curvature instead of the correct one corresponding to the axis of the pelvic canal. The type and general appearance of the book is good, and worthy of commendation. P. F. M.

THE PATHOLOGY, DIAGNOSIS, AND TREATMENT OF DISEASES OF WOMEN, including the Diagnosis of Pregnancy, by GRAILLY HEWITT, M.D., Lond., F.R.C.P., Professor of Midwifery and Diseases of Women, University College, and Obstetric Physician to the Hospital, etc. Second American from the third London edition. Revised and enlarged. Philadelphia: Lindsay & Blakiston, 1872. 8vo. Pp. 751.

CONSIDERING this book as the latest exposé of *English* Gynæcology, we shall, while endeavoring to give an impartial review of it, lay particular stress on those points in which it differs from its most distinguished American contemporary, Prof. T. G. Thomas's Diseases of Women, an extended review of which appeared in the November number of this journal.

Prof. Hewitt opens his book with a chapter on the General Pathology of the Female Sexual Organs, in which he mentions the complete change of his ideas on Uterine Pathology since the appearance of the first edition of this work nine years ago, and, after giving a list of all the gynæcological cases (1,205) seen

by him at the University College Hospital, from 1865 to 1869, confesses his adherence to the theory of the mechanical origin of the majority of uterine affections, and places that class of displacements known as "flexions" in the first causal order; flexions and inflammation of the uterus are therefore, as a rule, to be looked upon in the light of cause and effect. In the second chapter the Natural History of the Uterus and Ovaries is very ably and lucidly discussed. "Life in the woman is made up of three periods: 1. The period preceding that of sexual activity; 2. The period of sexual activity; 3. The period following the cessation of sexual activity." "There are two great functions in which the uterus is prominently concerned, and which are most powerful disturbing influences in regard to its textural condition; these are menstruation and gestation. There is a third in which it is also concerned, viz., the sexual congress, which is also capable, though probably in a less degree, of affecting its textural condition." The physiological changes in the uterus and ovaries during menstruation and gestation, the anatomical relations of these organs, the phenomena of ovulation (Rouget's theory of this process dependent on the presence of an extensive muscular and vascular system forming the erectile structure of the internal generative organs, seems to be accepted by Prof. Hewitt), the average age of puberty, the cessation of the catamenia, their periodicity, the quantity, quality, and duration of the menstrual flow, are all treated of to some length; contrary to a long accepted theory, according to which the fimbriated extremity is the active agent, and grasps the ovary in close embrace at the period of the escape of the ovule, the author inclines to the opinion advanced by Rouget, that the contraction of the muscular apparatus spread over the uterus, ovaries, and broad ligaments, assisted by the engorgement of the ovary and its bulb, brings the ovary to the mouth of the Fallopian tube and effects the adjustment necessary for the ovipont.

Starting without a preconceived theory, the author states his views on uterine pathology, which have led him to the following deduction:—"The conclusion has forced itself on me that the changes in the shape and position of the uterus, but especially in the shape of the organ, are almost invariably responsible, in one way or another, for the sufferings of the patients who are the subjects of them. And further, the conclusion, no less inevitable, that the restoration of the proper shape of the uterus is the means of removing these sufferings. These views necessarily form the basis of the uterine pathology now to be enunciated."

The clinical changes in the uterus are enumerated as follows: 1. Undue fulness of the blood-vessels, congestion of the uterus, referable principally to flexions (a diagram shows the compression of the blood-vessels and rarefication of the tissue at the internal os in the anterior wall during anteflexion), occasionally to other causes; 2. Actual increase in the bulk of the organ, slight hypertrophy, sometimes associated with induration or at times with undue softness of the uterine tissues; 3. Together with these may be frequently found a decided change in the shape of the uterus, amounting to a deformity of the organ; 4. Changes in the living membrane of the uterus and the cervix, endometritis; 5. Changes in the position of the uterus, as a whole, in the pelvis; 6. Acute inflammation of the uterus; 7. Fibroid tumors and polypi; 8. Carcinoma; 9. Tubercle. After giving a short definition of the ætiology and pathology of the first six of these changes, the author devotes eight pages to a general discussion of the treatment of acute and chronic inflammation of the uterus, and gives a very good survey of the principles on which the treatment of the latter by constitutional and topical remedies, mineral waters, injections, &c., is to be conducted.

The chapter on Digital Examination, and on Exploration with the sound and speculum, describes the normal and pathological conditions and appearances to be felt and seen thereby. We are glad to see a correct view taken of the supposed shortening of the cervix uteri during pregnancy, which has caused considerable discussion within late years, and which is shown to be owing to the gradual drawing up of the *vaginal* portion out of the vagina after the fourth month, without the cervix being in the least shortened, and also that mention is made of the sounding of the Fallopian tubes, as to the possibility of which doubts are still entertained by some authors. "A tumor felt through the walls of the vagina on digital examination may be caused by: 1. Distention of the bladder; 2. Calculus in the bladder; 3. Distention of the rectum by fæces; 4. Cancer of the rectum; 5. Retroversion and retroflexion of the unimpregnated uterus; 6. Retroversion and retroflexion of the gravid uterus; 7. Anteversion and anteflexion of the uterus; 8. Fibroid tumors growing from and in the posterior part of the cervix uteri, or from the uterus itself; 9. General enlargement of the uterus, from whatever cause; 10. Enlargement of Fallopian tube, due to distention by serous or purulent fluid, or by blood and Fallopian pregnancy; 11. Abdominal pregnancy; 12. Blood tumors of the pelvis (peri-uterine hæmatocele); 13. Ovarian tumors, also enlargement and congestion of the ovary;

14. Cysts of the broad ligaments (Wolffian cysts); 14. Hydatid cysts; 15. Pelvic cellulitis and abscesses; 16. Osseous or other solid tumors growing from pelvic walls." Anteflexion of the gravid uterus is, according to Dr. Hewitt's experience, a rather common condition, and frequently occasions miscarriage; the dislocation becomes reduced, if at all, during the fourth month and the patient is relieved.

That abortion may and does occur during and often in consequence of anteflexion we are well aware of, but we have always considered the miscarriage as the result of the flexion, and not *vice versa*. Does not Dr. Hewitt mean *Impregnation* of the *anteflected* uterus is a rather common condition, and frequently ends in miscarriage? Neither Scanzoni nor Thomas speak of anteflexion, gravidity, and abortion in the order and connection mentioned by Hewitt, and the idea is certainly a novel one to us. He surely does not mean to say that the normal uterus frequently becomes anteflexed after or in consequence of impregnation?

All these pelvic tumors, which may or may not extend upwards and become abdominal, as well as others which are really abdominal and may or may not appear and become pelvic also, are treated of to some length and in a very practical manner in this and the next chapter on the Examination and Diagnosis of Abdominal Tumors, and the difficult points of Differential Diagnosis between them are distinctly set forth. Both student and practitioner will find a careful perusal of this chapter (the arrangement of which is, to my knowledge, a new and an appropriate feature in a work on Gynæcology) most interesting, and the latter will be materially aided by the information and hints it contains in determining a doubtful case of uterine or abdominal disease.

The propriety of devoting 46 pages of a treatise on Diseases of Women to the "Diagnosis of Pregnancy" may be questioned, notwithstanding the mention made of it in the title. In a manual of Obstetrics, the chapter in question, describing as it does the relations of the gravid uterus to the surrounding parts, the information to be obtained by the inspection, auscultation, and palpation of the abdomen, the peculiarities of the sounds of the fœtal heart, the uterine and the funic souffle, the sound produced by the fœtal movements, the changes in the color of the vagina, and the condition of the breasts, would fill a vacancy often found in English works on the subject; in this book, however, it seems that the space, useful as the matter it contains certainly is, might have been employed for the discussions of questions nearer its character. The differential diag-

nosis between the gravid uterus and ovarian and abdominal tumors could have been more concisely stated than it is. In chapters VIII., IX., X., and XI., 70 pages, we find a careful survey of flexions, ("*a disease of the uterus the essence of which is change of shape*,") those acquired deformities which give rise to so many and so important disturbances in the female economy, as to justify us in regarding them the principal disease to which the generative organ in the woman are liable.

The causes of flexions are predisposing and exciting. Predisposing: An unhealthy state of the body generally, want of tonicity, and pregnancy. Exciting: Exaggeration and combination of the predisposing causes, sudden shocks or jars, a constrained position of the body, the use of sewing-machines (principally active in the production of anteflexion). The delicate adjustment of the uterus in the pelvis, and particularly its want of regular anterior support by any other agent than the ever-varying urinary bladder, is mentioned as a circumstance predisposing to the occurrence of flexion.

The effects of dress, imprudence during menstruation, enlargement of the body of the uterus, tumors, accumulation of fluid in utero, endometritis, abdominal tumors, ascites, fœcal accumulation, false membranes, shortness of the round ligaments, are causes of which no mention is made, somewhat to our surprise, considering the importance attached by the author to flexions, and the minuteness in their description naturally to be inferred therefrom.

"It is a matter of accident whether the fundus moves forward or backward." "Version very rarely occurs without some degree of flexion, nor does flexion usually occur without some degree of version."

The author, contrary to those writers who believe the congestion of the body accompanying the deformity to be the primary evil, and the cause of the pain and the flexion itself of secondary consequence, holds the following views:—"A congestion of the upper part of the uterus, which we may consider to exist primarily, may, in the first instance, produce flexion. Having done that, the flexion will react on the congestion and will increase it; and, unless cured, it will prevent the cure of that congestion."

Further effects of long-continued flexion are: hypertrophy of the uterus (often increased by defective involution); descent of the uterus, gradually produced by the straining during defecation and micturition, which itself is caused by the irritation of the pelvic organs accompanying the flexion; contraction of the cervical canal, disturbance of the menstrual functions

(menorrhagia and amenorrhœa); sterility; abortion more commonly in ante- than in retroflexion, because impregnation occurs more rarely in the latter. "Anteflexion of the uterus leads to miscarriage generally in the following manner: the uterus remains confined in the pelvis, and during all this time the growth of the ovum is, to an extent, interfered with and miscarriage results. Shortly afterwards possibly the patient falls pregnant again before the uterus has regained its proper shape. And this may be observed to go on in some cases four, five, or six times in succession. The proof that this condition is the cause of the miscarriage is, that the restoration of the fundus uteri to its proper position will prevent further miscarriages, and, if the circumstances of the case allow of this being done, the succeeding pregnancy will proceed naturally."

How does the uterus remain confined in the pelvis, unless by adhesions, which are generally supposed to be rare in anteflexion? There is nothing, to our knowledge, to prevent an anteflected uterus from increasing in size and rising out of the pelvis as the pregnancy advances; that the congested and irritable condition of the fundus and corpus uteri, and the generally existing chronic endometritis, may and often do prevent the retention of the gradually enlarging ovum, and are the primary causes of its premature expulsion, is a well-known fact, and might, we think, sufficiently explain the occurrence of the abortion. "A restoration of the fundus to its proper position will," of course, "prevent further miscarriages," particularly if the congestion and irritability of the uterine mucous membrane be removed by special treatment. "Another result connected with abortion is the retention of the ovum in the uterus after death," owing to the acutely flexed direction of the uterine canal. A knowledge of this fact will enable us, by artificially straightening the uterus, to evacuate the ovum and relieve the patient.

Among the various pains and discomforts produced by flexions, the author mentions two cases of intense constant pain in the abdomen on a level with the umbilicus, one on the right and the other on the left side, the cause of which had been sought for in vain, until finally a vaginal examination was made, an acute retroflexion found the displacement rectified, and the pain permanently relieved. "More generally, in ninety per cent. of cases, the rule holds good that the pain is located in the back in cases of retroflexion, and in the inguinal regions in cases of anteflexion."

The frequency of retroflexions and anteflexion is as 112 to 184.

"The actual acuteness of the bend in the uterus [in retroflexion] appears to influence the result in regard to suffering."

"An oscillating state of things in which the uterus is so placed that it is now more, now less, flexed, appears to be that which of all others gives most trouble in regard to the locomotive power." One form of anteflexion likely to be overlooked as such is the rather uncommon one of acute anteflexion with retroversion of the whole organ; the os uteri looks quite upward. These cases are extremely troublesome to deal with.

"Miscarriages are very common (in anteflexion). The latter fact is not yet admitted by the profession, but I am quite certain as to its correctness." Out of 235 married women with ante- or retroflexions, 51 had had abortions, 24 retroflexion with 32 abortions, 27 anteflexions with 54 abortions; the greatest number of abortions in any one case of retroflexion was 3; in any one case of anteflexion, 9. "It appears that, on the whole, anteflexion does not so certainly occasion miscarriage as retroflexion."

Treatment of Flexions of the Uterus. The first indication is to place the uterus in a natural condition as regards its shape and as regards its position. This mechanical indication may and should be fulfilled, even where the flexion is acute and attended with congestion. The longer a flexion has existed the longer it will take to cure it.

Position of the Body, horizontally on the face in retro-, on the back in anteflexion, for a longer or shorter period. For a recent case of retroflexion Dr. Hewitt recommends the rectification of the uterus with the sound every 2 or 3 days, perhaps at intervals of a week, and the wearing of a flexible ring-pessary of copper wire covered with gutta-percha. For chronic cases the sound should be introduced at intervals of a week for two or three months, leaving it in the rectified uterus for half an hour or an hour at a time; the sound should always be very slightly curved and its introduction aided by pushing up the fundus uteri with the examining finger.

The ring-pessary just mentioned is very strongly recommended by Dr. Hewitt, who cannot say too much in its favor; it measures from 2¼ to 4½ inches in diameter, and is made in various sizes, the numbers 2, 3, and 3½ being the most generally applicable. "The typical form for the instrument is ovoid, one end being a little wider than the other, and the whole slightly curved to adapt it to the curve of the vagina. The instrument is introduced with the smaller end first and a little obliquely as regards the aperture of the vagina. The smaller or upper end must be behind the os uteri." It acts by supporting the *cul-de-sac* of the vagina behind the os uteri in

an elevated and proper position in the pelvis, and thus pushes the fundus uteri upwards, and draws the os uteri backwards.

The shape as well as the size of the instrument must be modified according to circumstances. As the cure advances the size of the pessary must be increased. To prevent the rotation of the ring on its axis, which will occasionally occur on strong pressure from above, Dr. Hewitt has added a blunt stem to the broader end which projects slightly from the vagina and absolutely prevents rotation. Other pessaries mentioned are Priestley's and Thomas's, both obtaining their fixed point from without; the stem-pessary and ring combined has been abandoned by Dr. Hewitt, as well as the use of the air-ball. Dr. H. is so well satisfied with his method of rectifying the uterus with the sound and supporting it with the oval ring-pessary, that he at present employs no other permanent treatment for retroflexion. During pregnancy the ring-pessary may be left for the first 3½ or 4 months and then removed, the patient maintaining the horizontal position as much as possible. After delivery, at the end of a month, if there be any sign of retroflexion, the ring-pessary should be introduced and worn for a few months. For the cure of anteflexion, easy in recent, very difficult in old cases, the frequent introduction of the sound, the "cradle"-pessary, and the horizontal position on the back are the chief indications to be followed. "The cradle"-pessary is made by bending a ring-pessary (generally No. 3 or 3½) to the proper shape, the two ends approaching each other and slightly curved outwards, and the middle portion bent to a more or less acute angle, like a saddle; of late a cross-bar has been added for certain cases. When the instrument fits well, when it does not compress the cervix between its lateral branches, and when the patient keeps moderately quiet, it may be worn for months without being changed, it does not interfere with menstruation nor defecation, and repeatedly patients have become pregnant while wearing it. "In long-standing cases a year may be required to perfect a cure." The narrow portion is first introduced, then pressure is made on the saddle-part, which shoots into place at either side of and before the cervix, and the lower end of the instrument is then gently pushed a little upward.

In very old cases it may be necessary to incise the cervix and dilate with sponge-tents, or stem-pessaries (which as a rule are too long and therefore injurious) should be worn, with oval disk loosely attached to support them. When the case is almost cured, the use of the air-ball, when the patient makes any unu-

sual exertion, should be recommended. The wearing of a cradle-pessary is frequently necessary to allow pregnancy, to prevent miscarriage, and to obviate the return of the anteflexion after delivery; in the latter case it might even be worn as soon as ten or twelve days postpartum, and thus the patient saved from the tedious necessity of lying on her back for four or five weeks.

The almost complete omission of all other pessaries or modes of treatment, such as Hoge's lever, Thomas's, Hurd's, Cutter's, and others, of Sims's division of the posterior lip in anteflexion &c., is rather surprising and looks somewhat onesided. The reports of other gynæcologists of note, on their success in the *cure* of flexions, might cause us to be a little skeptical as to the permanency in the improvement in those cases where the deformity was of a year's duration or more. The importance attached by Dr. Hewitt to flexions must be our excuse for devoting so much space to their discussion. Let us hope that the "cradle"-pessary really is able to supply the want hitherto felt in the radical treatment of ante-flexions.

In the chapter on "Prolapsus Uteri" attention is called to the fact that flexions are in many instances to be considered as the starting-point of the displacement; the various stages of prolapsus; the manner in which the descent is brought about, the bulky and displaced uterus sometimes descending first and drawing the vagina and its attachments after it, and sometimes the recto or cystocele being the primary change and the uterus gradually following; the entire absence of connection between hypertrophic elongation of the cervix both supra-and infravaginal, and prolapsus (descent of the fundus uteri), on which subject some confusion has been made by Huguier, Carl Braun, and others; the differential diagnosis between the various forms of prolapsus and hypertrophy, all these points are treated of under this heading, and illustrated by comprehensible drawings. The hypertrophic elongation is stated to occur principally among laundresses, cooks, and other women compelled to stand a great deal, the vaginal portion apparently dragging on the rest of the uterus and elongating it. (Possibly a relaxed condition and want of contractility of the uterine tissue may be the primary reason for this pathological condition, thus allowing the cervix to become lengthened by the mere weight of the portio vaginalis as if it were made of putty—an illustration I take from the verbal description of a case in point by Dr. T. A. Emmet. *Reviewer.*) The excision of the elongated cervix, according to Huguier, with or without covering the stump according to Lewis is recommended, and the wire-rope écraseur preferred to

the knife or other instrument for the amputation of the hypertrophied part.

The principles by which the uterus may be maintained in its proper place in the pelvis and simple prolapsus be cured, viz.: by rendering the vaginal canal rigid by means of pessaries, by operations on the perinæum, or by constricting the canal itself for some little distance from the aperture—views adopted by Dr. Hewitt since the publication of the last edition, and now put forward for the first time—these principles are by no means new or original with the author, and have been acted on in the treatment of prolapsus by numerous operators almost since the time when gynæcology became a distinct branch of medical science.

Of all internal pessaries the oval-ring pessary mode, of course, according to Dr. H.'s idea, is considered the best, and a few others only are unfavorably mentioned, among them Zwanck's. Under radical operations, the operation for restoring the perinæum both in fresh and old cases of rupture is described in the latter. Dr. H. makes a semi-lunar denudation of the edge of the perinæum, with one or two triangles on the posterior vaginal wall if constriction of the vagina is to be combined, and unite with silver wire and ebonite beads in preference to the quill-suture. The dyspepsia occurring during chronic "amenorrhœa (which subject is well and extensively discussed, without, however, advancing any new points), is "best treated by administering *frequently and in very small quantities*, for some days together, food of the simplest character—milk-and-water, weak beef-tea, yolk of egg beaten up uncooked with milk," the very same plan described by Dr. Brown-Séquard in the first number of his new journal. The credit of priority would therefore seem to belong to Dr. Hewitt.

"Flexions of the uterus constitute one of the first and most common direct or indirect causes of menorrhagia." Interstitial fibroid tumors of the cervix uteri, defective involution, malarious influences, ovarian irritation, and over-excitation, are a few of the other causes mentioned. Attention is called to the occasional coincidence of the abrupt appearance of profuse menstruation with the formation of peri-utrine hæmatocele. The causes of metrorrhagia are numerous and well known; the subjects of abortion, moles, retained placenta, spontaneous expulsion of fibrous polypi and fibroids, membranous exfoliations from the uterus (the dysmenorrhœal membrane occurs independently of conception according to Dr. H.) and vagina, etc., are successively discussed in this connection.

Dr. H. holds it as "unquestionable that dysmenorrhœa is to be

regarded as a symptom indicating, in almost every instance, an impediment to the escape of the menstrual fluid from the uterus."

Seventeen pages of the chapter on "Dysmenorrhœa" are devoted to the diagnosis of pains referable to the internal genital organs, including dysmenorrhœa, "a novel and useful mode of explaining and discussing the various pains felt and complained of in the abdominal and pelvic regions." We have the "pain in the back, in the groins, the hypogastric region, pains more or less constant, pains of an inflammatory character, sudden pains, hysterical pains, bearing-down pain, pain in the lower extremities," &c. The treatment is principally surgical and mechanical, and the various procedures and instruments advocated by Sims, Greenhalgh, and others for the dilatation and incision of the cervix uteri are described. Sponge-tents "should never be used after any cutting operation has been performed in the os uteri, except after an interval of some weeks" (probably for fear of the supposed liability of fresh-cut surfaces to absorb septic matter.—*Reviewer.*)

The nervous disorders referable to the uterus are divided into two classes: Increase of direct sensibility of the uterus (the "irritable" uterus is asserted to be nothing else than a flexed organ) and increase of reflex sensibility, or hysteria, one of the most remarkable diseases peculiar to the human race, not confined to the female sex, and consequently not always, though exceedingly often, associated with or referable to disease of the uterus. The greater liability of woman to emotional and reflex disturbances explains the infinitely greater frequency of reflex irritability in the female sex, whose most sensitive organ, the uterus, plays such an important part in both her spiritual and organic life. "The essence of the disease is (Dr. Reynolds) an exaggeration of involuntary motility, the sensational and reflex movements being in excess." The disease may originate in two ways in the female sex: 1. From external emotional disturbances; 2. From organic internal disturbances. The treatment naturally consists in the removal of the abnormal susceptibility and the exciting cause. Sickness (nausea and vomiting) is another result of reflex irritation proceeding from the uterus, which organ will very frequently be found in a state of flexion, a condition (either permanent or only temporary and evanescent), not unfrequently, together with the increasing distention of the womb, found to be the cause also of the sickness during pregnancy. The rectification of the flexion by the means already mentioned, and during pregnancy by rest on the back, the "cradle"-ring or the air-ball pessary, is the treatment usually followed by him with success.

A very practical feature of the chapter on "Uterine Malformations," are the plates which materially serve to explain and impress upon the mind the otherwise somewhat complicated varieties of this species of deformity. In the chapter on "Non-sanguineous Discharges, Leucorrhœa," etc., the various kinds of discharge, the watery, mucous and puriform, purulent, sanious, offensive, gonorrhœal, and syphilitic are each separately treated of, and their causes, nature, and treatment discussed. There are, according to Dr. McClintock, three forms of "Peri-uterine Hæmatocele." 1. The sudden and acute form; 2. A form less severe and overwhelming in its effects, life not being so evidently threatened; 3. A sort of chronic form, the symptoms being developed gradually or in succession. The causes may be: Rupture of some one of the vessels in the uterine or ovarian plexus, apoplexy and rupture of the ovary, hemorrhage during menstruation from the Graafian follicle into the peritoneal cavity, hemorrhage from the uterus and Fallopian tube into the peritoneal cavity, rupture of the fœtus containing cyst in extra-uterine pregnancy, hemorrhage from vessels of the peritonæum and other sources, cachectic or other constitutional causes, etc. Dr. Hewitt is, as a rule, opposed to puncture of the tumor, although, carefully done without the introduction of air, it would in a severe case shorten the duration of the malady.

"Pelvic Cellulitis and Abscess"—perimetritis and parametritis (Duncan), pelvic cellulitis and pelvic peritonitis, periuterine cellulitis (Thomas)—is very well discussed; attention is called to the peculiar hardness of the tumor soon after its effusion, to the great frequency of pain in the inguinal region when the thigh is extended, owing to the distension around the psoas muscle, an almost pathognomonic sign of pelvic cellulitis, and to the beneficial effects of rest, particularly if the leg of the affected side is placed on a double-inclined plane with the heel elevated, etc.

The chapter on "Fibroid Tumors of the Uterus" contains an exceedingly good review of the nature of the various forms of fibroid and polypoid uterine growths, of their diagnosis, and particularly of their operative treatment. The cysted transformation does not appear to affect parietal fibroid tumors. (We remember seeing a case in Vienna, where a large uterine tumor was diagnosticated as a fibroid of unusual vascularity and softness, perhaps a sarcoma. The woman dying suddenly of hemorrhage and collapsus, at the autopsy the tumor was found to be a multilocular cyst contained entirely within the right uterine walls; the cyst, which was of the size of a child's head, contained a serous, viscid fluid, and was considered by the pa-

thologists present to have originated in the gradual liquefaction of a parietal uterine fibroid.—*Reviewer.*)

The "Recurrent Fibroid Tumor" described by Hewitt as a growth proceeding from the inner wall of the uterus and projecting downward through the os like an ordinary fibroid polypus, but differing from it in its liability to grow again soon after removal, has been shown by Gusserow, Hegar, and Winkel (Archiv für Gynäkologie, Vols. I. II. and III.) to be identical with, and really a medullary sarcoma of the corpus uteri, or a "myo-sarcoma polyposum," as Winkel calls it; judging by the number of cases now known it is not so rare an affection as was formerly supposed.

The *rationale* of the deep incisions through the os and cervix uteri to arrest hemorrhage from fibroids is stated as follows: "The hemorrhage is arrested because no further accumulation of blood in the uterus occurs." The blood oozes away gradually and is not so much noticed (?).

"The removal of the entire uterus with the ovaries by gastrotomy appears to be a less fatal operation than the removal of the tumor alone."

"A case of cauliflower excrescence (epithelial cancer) is one in which the cancer attacks simply the surface of the cervix uteri; but a case of cancer of the medullary form is one in which the disease attacks the tissues of the cervix more deeply, producing a very noticeable *hypertrophy* of the parts affected in the first instance, which spreads into and invades the adjacent parts, including the free surface. The two diseases frequently exist together, etc." *Medullary tumor* is another form of cancer found growing from the os uteri, on one side or other, and more or less pedunculated. This form is not very common.

Cases of physometra are rare, and instances where flatus is stated as being expelled from the vagina can probably generally be explained by the now well-known fact of alternated admission and expulsion of air from the vagina by a spasmodic contraction and relaxation of the recti-abdominous muscles. The abdominal tumefaction so frequently found in cases of anteflexion, with or without ovarian irritation, and so much complained of by patients, is but imperfectly explained by Dr. Hewitt as being owing to the mechanical stretching of the peritonæum adjacent to the ovary.

The Diseases of the Ovaries and Broad Ligaments, their pathology (illustrated by macron and miscroscopical diagrams), diagnosis, and treatment are treated of with sufficient clearness and minuteness. In the description of "ovariotomy," the author

mentions his improvements in the buckle-clamp, which he makes of a No. 4 ring-pessary, bent double and fastened to the abdominal wall with adhesive plaster, the pedicle is secured to it by means of its ligatures. After the operation, no food at all should be given by the mouth, but only per rectum, for three days or more to prevent the distention of the intestines with gas, the stretching of the inner edge of the wound, suction of purulent products, pyæmia, and death. Pyæmia is to be treated with brandy per rectum, frequent doses of food, occasional doses of opium, very careful drying of the wound and removal of decomposing products thereof, dry warmth to the abdomen, no moisture.

The last three chapters are devoted to the discussion of Diseases of the Perinæum and Vulva; Diseases of the Vagina, (a short account being given of the operation for vesico-vaginal fistula as practised by Drs. Sims and Emmet); and Diseases of the Urethra and Bladder (difficult, painful, frequent, involuntary, and impossible micturition, caused by or complicated with uterine disease, etc.)

A supplementary chapter on sterility contains the various causes of infecundity, mechanical, uterine deformity or tumors, inflammation, vaginismus, leucorrhœa, ovarian disease, ill-timed or too frequent sexual intercourse, anæmia, etc. The cure depends upon the removal of the cause.

Our review has, indeed, acquired a much greater length than was originally intended; but partly through real interest in the book, and partly to avoid the possible reproach of partiality to an American author (see Review of Dr. Thomas's work), we allowed our article to overstep the usual limits, and trust that the reader may find in it an inducement to give Dr. Hewitt's excellent book a careful perusal; or, if his time do not permit this, he may in a small way draw some benefit from the items mentioned in the review. Judging from a brief review of the first edition in the American Journal of Obstetrics, Aug., 1868, Dr. Hewitt has improved the arrangement of his chapters, and like Dr. Thomas, has given the pathology, diagnosis, and treatment of each affection in the chapter devoted specially to it. The arrangement of the book may occasionally appear a little arbitrary and peculiar, and the deduction of the majority of uterine affections from "Flexions" a little overdrawn and one-sided; still there is so much of good in the book and so much not contained in other works of its kind, that we can but recommend it to the profession and the advanced student. To draw an accurate comparison between it and Dr. Thomas' work would be very difficult and almost necessitate doing so chapter by chapter; taking both together, however, one to sup-

plement the other, we have all the information we need and can desire on the present condition of gynæcology. P. F. M.

Clinical Lectures on Diseases Peculiar to Women, by Lombe Athill, M.D., Univ. Dub., Fellow and Examiner in Midwifery, King and Queen's College of Physicians, etc. Second edition, revised and enlarged, with six lithogr. plates and woodcut illustrations. Philadelphia: Lindsay & Blakiston. 1873. Pp. 241.

This little work is, as its title proclaims, a series of clinical lectures delivered to the class at the Adelaide Hospital, Dublin. All theory, hypothesis, and scientific speculation is omitted, and only the really practical part of Gynæcology discussed. Intended as it is for students and practitioners not yet versed in the intricacies of gynæcological practice, it will be found to contain numerous practical hints and directions, whereby the inexperienced physician will be often enabled to form a correct diagnosis, or find and employ the appropriate treatment.

In connection with a condensed description of ætiology, diagnosis and complications of the most common forms of uterine disease, various small points and technicalities of manipulation, which the specialist has acquired by dint of long practice or after considerable experiment, are explained in concise terms, and their knowledge will often save much trouble and annoyance. Thus, the minutiæ of digital and specular examination (by-the-by, would it not be well to say "specula" instead of "speculums" on page 41), the introduction of the sound, of the various kinds of pessaries commonly in use, the operation of incision of the cervix with the different species of metrotomes, the plugging of the vagina, the application of sea-tangle bougies and sponge-tents, of caustics to the internal uterine surface (Dr. Athill strongly recommends in obstinate menorrhagia the painting of the lining membrane of the uterus with strong nitric acid, when it is in an unhealthy granular condition due to sub-acute inflammation, the cervix and os internum having been previously dilated, and considers this method more efficacious, safe, and reliable than intra-uterine injections or the curette) and to the cervix, etc., are all described in their respective chapters and adapted to their special indications. Containing as it does many of the latest practical innovations in this branch of medicine, it will by its condensed arrangement occasionally prove useful to the experienced specialist; to the advanced student and the general practitioner it will be found a valuable and convenient work; and to these men, for whom it claims to be written, we take pleasure in recommending it.

P. F. M.

THE AMERICAN

JOURNAL OF OBSTETRICS

AND

DISEASES OF WOMEN AND CHILDREN.

VOL. VI.] AUGUST, 1873. [No. 2.

ORIGINAL COMMUNICATIONS.

THE HISTORIES OF THREE CASES OF RUPTURE OF THE UTERUS.

By JOHN S. PARRY, M.D.,
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(Read before the Obstetrical Society of Philadelphia, April 8, 1873.)

Rupture of the uterus is one of the gravest accidents which can occur during the progress of a labor. A sufficient number of cases are already upon record to warrant us in concluding that the clinical history of the lesion has been well studied and its causes fully appreciated. If, however, any one who has met with several examples of this accident recalls his own experience, he will probably conclude that it is very liable to escape detection until revealed on the post-mortem table. The records of numerous cases teach us that, notwithstanding the gravity of the lesion, the peculiar

symptoms of rupture of the uterus may be absent. In one of the patients whose histories are put upon record to-night, all of the typical phenomena of the condition were absent, while in another instance unusual, and, so far as the writer is aware, unique and previously undescribed, symptoms presented themselves.

CASE I.—*Rachitic Dwarf. Rupture of Uterus from Neglect.*

Mrs. E., aged 23, an American, fell into labor at about full term, March 19th, under the care of an intelligent but inexperienced obstetrician. She was a dwarf, being only 48 inches high, and had probably been rachitic in infancy. Her labor-pains set in during the night of March 19th, and continued during the 20th and 21st. They were slight during this period, and the head of the child could be felt presenting. About 2½ P.M., on the 21st, they became "frequent and hard." Her physician was recalled immediately and reached her about 15 minutes afterward, when her pains had ceased. He could just reach the head of the child, and the os was "tolerably well" dilated. The woman said that she felt very badly, and she was uneasy. Her skin was moist and she was very pale, while the vagina and perinæum were moist and relaxed. At 4¼ P.M. pelvic deformity, and decided contraction of the antero-posterior diameter, were diagnosed. She still had no pain. The head was felt above the promontory, and more blood than usual was issuing from the vagina. At 7 P.M. she was seen by Dr. J., who could not feel the head above the promontory. The bleeding was more profuse. An

hour later the loss of blood was decided and increasing. The head could just be felt within the os. The antero-posterior diameter of the pelvis was measured, and decided not to exceed 2½ inches. The os and cervix uteri were flabby, and clots of blood could be felt before reaching the head. Uterine contractions were still absent; the patient complained of feeling badly, and of pains in the lower part of the abdomen. Her face was pinched and her pulse rapid and weak.

A diagnosis of internal hemorrhage was made. Ergot and stimulants were directed, while the vagina was tamponed.

At 9½ P.M. she was much worse, though there had been but little external bleeding after the introduction of the tampon. The forceps could not be applied, and owing to the extremity of the woman's condition it was decided that she could not survive the operation of craniotomy. She died collapsed an hour and a quarter later.

Autopsy.—Upon opening the cavity of the abdomen, the child, placenta, and several clots were found in it. The anterior wall of the uterus was torn just above the bladder. The walls of the organ in the vicinity of the rupture were exceedingly thin, while the fundus was thick, hard, and contained some clots. The os and points immediately above it were filled with coagulated blood.

The following were the diameters of the pelvis:—

Antero-posterior, 2¼ inches; transverse, 4½ inches; oblique, 4¼ inches. The height of the woman was only four feet.

The child was of average size. The cervico-bregmatic and bi-parietal diameters of the dried head measured nearly 3½ inches, while the occipito-frontal was 4⅛ and the occipito-mental 4½ inches.

Remarks.—This history is exceedingly instructive. Rupture of the uterus was not diagnosticated, and, it seems, hardly suspected until the woman had perished. The gentlemen in attendance fully appreciated the grave symptoms which manifested themselves, and they concluded that another serious accident of the lying-in room, concealed hemorrhage, had set in. They likewise fully recognized the gravity of the pelvic deformity, but were thrown off their guard by the absence of severe labor-pains, which was noticed during the whole of the parturient process. The patient made but little complaint about her "pains" until the afternoon of Tuesday, and even then they ceased before her physician reached her, though he was at her bedside within twenty minutes after he was called. It is probable that the laceration occurred at this time. It seems that but one characteristic symptom of rupture of the uterus was present in this case; this was recession of the child's head from the brim of the pelvis. Upon the value of this it is not necessary to insist, since it is well recognized.

CASE II.—*Difficult Labor. Failure to Deliver by Forceps or Version. Craniotomy. Rupture of the Uterus. Recovery.*

Mrs. G., aged 27—a primapara—seen in consultation with the late Dr. Mustin at 7 P.M., on Tuesday evening. Labor had commenced on the previous Sun-

day morning. The pains had continued strong during all that day and the succeeding night. The waters were discharged at 4 A.M. on Monday. During the day and succeeding night she suffered much, but called in no physician until Tuesday morning, when she summoned Dr. Mustin, who found the pains strong, the os dilated, the vagina cool and moist. The head, which was a large one, was presenting at the superior strait in the right occipito-posterior position. It was partially extended so that the occipito-frontal diameter was in the oblique diameter of the pelvis. There was no advance during the day, and the following was her condition at my visit. Her pains were very strong, pulse good, tongue clean, *morale* excellent, the vagina hot and dry, the discharges brown and rather offensive. There was a large caput-succedaneum; the head of the child had not left the uterus, and was forced down into the superior strait.

Attempts to secure flexion failed. Ether was administered, and Simpson's forceps were applied with great difficulty. Strong traction was made until 11 o'clock, but without producing the least effect. At this time a fissure a little over an inch long was discovered in the posterior lip of the uterus. It did not extend through the tissue of the organ, and reached down to, but did not involve, the vagina.

The forceps were removed, and a cautious attempt was made to turn, but was soon abandoned. The uterus was so firmly contracted that there was no hope that it could be done without rupturing the organ.

A large dose of morphia with stimulants was now

administered, and attempts at delivery suspended until 3 A.M. on Wednesday morning, when Dr. Wallace's forceps were applied and traction made during the succeeding four hours without any result. It was now determined to resort to craniotomy, and fifty-two hours after the rupture of the membranes the operation was commenced. Delivery was effected three hours later, after the most violent efforts. The pelvis was but slightly contracted, the difficulty being in a great measure due to the large size of the child's head and its firm ossification. Immediately after the labor was completed, a rupture of the uterus was discovered. It involved the posterior surface of the organ, and was nearly five inches long. The cavity of the uterus communicated with that of the peritonæum by an aperture at least two inches and a half long. The fingers were thrust through this into the cavity of the peritonæum, and the intestines were distinctly felt rolling and contracting beneath them. The margins of the rupture were quite regular, and to a certain degree conveyed the idea of a clean incised wound. The placenta separated readily. There was but little hemorrhage. The woman was replaced in bed very much exhausted. Large doses of opium were prescribed, and her friends informed that we had no hope of her recovery.

The writer saw her but once afterward, when Dr. Mustin could not be found. She was then suffering from general peritonitis, which was extremely severe; but, notwithstanding this, she fully recovered, and it is said upon good authority that she has since given birth to a living child without difficulty.

Remarks.—The rupture of the uterus in this case was unattended by the usual pain and profound shock, for the simple reason that it occurred while the patient was under the influence of ether. This was administered when the forceps were first applied, shortly after 7 P.M. After the detection of the fissure in the cervix, the contractions of the uterus were in a great measure suspended, but actual rupture was not suspected at the time. The morphia was given to prevent uterine contraction as much as possible until craniotomy instruments could be procured. The laceration in this case has always struck us as being somewhat peculiar, in the fact that it presented so many of the characters of an incised wound. There was no hemorrhage from the vagina, nor did the head recede.

The injury was not caused by the forceps, since the blades of the instruments, though introduced into the cavity of the uterus, did not come in contact with that portion of the organ which was torn.

The patient took no ergot after she was seen by Dr. Mustin. The midwife denied that she had given her any before his arrival.

CASE III.—*Disproportion between the Size of the Pelvis and Child's Head. Left occipito-posterior position. Rupture of the Uterus. Delivery by the Forceps. Death.*

M. S., a primapara, aged 22 years, fell into labor in the Philadelphia Hospital, March 29th, 1873. She was under the care of Dr. Edward Stone, resident accoucheur, to whom I am indebted for the following his-

tory. Dr. Stone was summoned at 9.30 P.M., when he learned that she had suffered from labor-pains during the entire day, and that the bag of waters had already ruptured, though the girl, who was rather feeble-minded, could not tell when this had occurred. The abdomen was unusually prominent, and on palpation Dr. Stone distinctly detected the outline of the fœtus through the abdominal and uterine walls. The head was presenting with the occiput to the left sacro-iliac synchondrosis. The fœtal heart was heard to the left of the median line of the mother, and was not very distinct. The os uteri was about one inch and a half in diameter, and dilatable; the head entirely above the superior strait. No contraction of the brim was detected: the mother's condition was good, and her pains were tolerably strong and frequent.

At 11 P.M. the dilation of the os was nearly complete, and strong expulsive pains had set in, during which the uterine tumor was more prominent than is usual. The patient had no desire to bear down, nor was she urged to do so.

At 5 A.M., on the 20th, the head had entered the pelvis. It was somewhat compressed, the cranial bones overlapped one another, and there was a large caput over the vertex. The mother's condition was good, although she complained of being tired.

At 7 A.M. she was vomiting profusely. The ejected matters were dark-colored, and had the appearance of coffee-grounds. Her face was pale, hands cool, pulse 160 per minute and feeble. She was drowsy, but did not complain of pain, and was satisfied with relief

from suffering; but the uterus continued to contract at intervals of ten minutes, though quite feebly. The vomiting continued during the morning, and at 9 A.M. her tongue was dry and brown, and her belly tender, with a fluctuating tumor over the uterus, between the umbilicus and pubis. There was no hemorrhage. Dr. Stone sent for me early in the morning, but through an error the message did not reach me until 2 P.M.

At 3 P.M. she was still vomiting occasionally. Her abdomen was quite tender, the uterine contractions very feeble and occurring at longer intervals. Ether was now administered and partial anæsthesia produced. At this time the fœtal heart was inaudible. The fluctuation above the pubis had increased. A catheter was passed, but no urine was obtained, and the supra-pubic tumor was not changed. Simpson's forceps were applied to the sides of the pelvis, without regard to the position of the child. The head, which was in the cavity of the pelvis, had rotated and become directly transverse. Some force was necessary to start it, when it rotated to the first position; after which the forceps were removed, reapplied to the sides of the head, and delivery effected.

The child was still-born and weighed 8½ pounds. The head was considerably elongated by pressure. The bi-parietal and occipito-bregmatic diameters were each 4 inches, the occipito-mental 7½, and the occipito-frontal 6 inches. On the left side of the head and just in front of the ear was a groove, which was probably produced by the sacral promontory.

Ergot was administered immediately after the birth

of the child *for the first time.* The placenta was expressed by Credę's method, without more than the ordinary loss of blood.

The vomiting ceased after delivery, but in a short time the abdomen became very tympanitic, but the tenderness disappeared. During the night she had slight hemorrhage, sufficient to stain five or six napkins, became exceedingly restless, and died at 5 A.M. on the 21st.

Autopsy.—Five hours after death.

Face, lips, and posterior portion of trunk are livid. A dark thin fluid which resembles coffee-grounds flows from the mouth. She was 59⅛ inches high.

Abdomen.—Parietal and visceral layers of the peritonæum are deeply injected and of a brilliant red color. There was a little recent lymph upon the membrane.

The bladder was empty, strongly contracted, walls thick and dense. The mucous membrane was injected, especially over the posterior surface of the organ. Near the middle of the posterior wall, blood had been effused into and beneath the mucous membrane over a space nearly an inch in diameter. The mucous membrane at the fundus was thickened and œdematous.

Uterus.—Before the removal of the womb fluctuation was detected in the utero-vesical peritonæal pouch. From thence it extended upward for three and a half inches. It was perceptible over the whole of the left side of the uterus, but extended little beyond the median line. The peritonæum covering this space was deeply injected, was detached from the surface of the uterus, and fluid blood could be seen beneath it. At the upper margin

of the large fluctuating surface was a smaller one, two and three-quarter inches in diameter. The two cavities communicated by a canal, and the blood could easily be pressed from one to the other.

Upon the left side of the uterus, in the left broad ligament, was a large fluctuating tumor which nearly filled that side of the pelvis. Its upper boundary was the superior margin of the broad ligament, and below, it reached a point opposite the os uteri. The contents of the pelvis were removed, with a considerable portion of the peritonæum, by cutting close to the pelvic walls.

The uterine cavity was nine inches long. Upon the left side of the organ, just above the attachment of the cervix and vagina, was a rupture five inches long. Through this the hand could be passed into a large cavity which was partially filled with coagulated blood. It was capable of holding nearly a quart of fluid, and was formed by the peritonæum, which was not torn, but which had been dissected up over the anterior surface of the uterus, as previously described, and over a portion of the posterior aspect of the organ.

The tissue of the broad ligament was largely destroyed. On the left the effused blood was almost in contact with the pelvic wall. Below, it did not extend beyond the point mentioned, though it involved a small portion of the sheath of the psoas muscle.

The rent was longitudinal. The edges were somewhat irregular, were of a deep-red color, and had the appearance of having been bruised. The external surface of the uterus was very dark and stained with blood. The placental attachment was near the fundus on the

right and posterior surface. The uterine tissue presented no evidences of disease. It was examined with the microscope by Dr. Bertolet, who states that it was healthy.

The right ovary was normal. The left was enlarged, and nearly black blood was effused into its substance.

The brim of the pelvis measured four inches in the antero-posterior, and five and a half in the transverse, diameter.

The other organs of the body were healthy.

There is one extremely interesting point in connection with this case. This is, the fact that a fluctuating tumor existed over the pubis before the death of the patient. So far as we know, this has never been noticed in connection with rupture of the uterus.

The occurrence of rupture without a rent in the peritonæum is likewise a fact worthy of note. A somewhat similar case has been recorded by Dr. Radford, of Manchester, in his able paper on lacerations of the uterus. (*Trans. Obstet. Soc.*, London, vol. viii., p. 187.) In this instance the rupture was upon the right side of the uterus, and the buttocks and body of the fœtus escaped through it, tearing up and separating the peritonæum without rupturing it, so that when Dr. Radford reached this patient, whom he found dead, he discovered two tumors in the abdominal cavity—one the large uterus, the other the body of the child covered by the peritonæum. Dr. Radford says: "The records of medical science furnish no case bearing the least analogy" to the one which he has described. The only difference

between the history recorded by him and the one just related is, that in the latter the child did not escape through the rent. The separation of the peritonæum in this instance seems to have been due to the hemorrhage, which slowly tore up the membrane until it produced the large cavity which has been described, and which was characterized by a supra-pubic tumor and fluctuation.

There are several points which are presented for consideration by the cases which have been related. In the first, through an error, the patient was allowed to perish without any attempt being made to effect a delivery. Undoubtedly the accident might have been prevented by a timely resort to craniotomy or the Cæsarean section, for no one could hope to deliver a living child through a conjugate of 2¼ inches. But this not having been done, the recedence of the head, combined with the profound collapse and hemorrhage, indicated the grave character of the accident,—and, looking back upon the case from our present standpoint, the indication is sufficiently clear. This was, to perform gastrotomy, and, removing the fœtus, secundines, and clots of blood from the abdominal cavity, to have afforded the unhappy patient the only chance that there was for her to recover. Dr. Trask, in his admirable monograph upon rupture of the uterus (*Amer. Jour. of Med. Sciences*, Jan. and April, 1848, and July, 1856), has, we think, shown conclusively that this would have been the proper method of treatment under the circumstances. Certainly no one would advocate at this day the doctrine of Hunter and Denman,

that these cases should be abandoned to nature; but a larger number might probably be found who would attempt to relieve by introducing the hand, passing it through the rent in the uterus, seizing the feet, and attempting to extract. However successful this may be in pelves which are ample in size, the procedure would certainly add much to the dangers of the case when undertaken in a pelvis through which there is no hope of extracting an unmutilated fœtus, and in which the dangers of craniotomy are so great as to make it a terribly grave operation in uncomplicated cases.

In all of these patients the cause of the rupture was the same,—disproportion between the size of the child's head and the pelvic brim. Trask found this condition to be present in nearly one-fourth of all the cases which he has analyzed.

All the histories here related illustrate in a marked degree the influence of delay in delivery, or rather what Sir James Y. Simpson (*Obstet. Works*, 8vo, Phila.) called protraction of the labor in producing this accident. In the first patient, operative interference was clearly indicated, and should have been commenced as soon as the os uteri was dilated or dilatable. The patient lost nearly three days in fruitless efforts to relieve herself.

The history of the second patient is nearly analogous, and had she had timely assistance the terrible accident which so nearly destroyed her life might have been prevented, and her attendants might have been spared the dreadful alternative of plunging the perforator into the head of her living child. The third history is

equally instructive, and as forcibly illustrates the danger of delay in assisting delivery. It is true that the whole duration of labor was not great, being but little over twenty-four hours; but the bag of waters ruptured early, and from eleven in the night until between five and seven o'clock the next morning the uterus continued to act, though not very violently, without materially advancing the labor. At this time the overworked organ could bear the strain no longer, and gave way. No better illustration of the dangers due to protraction of labor could be detailed; and it has forcibly recalled to the writer the fact that, a short time since, he publicly stated in this hall that if the second stage of labor should continue actively for more than two hours without any advance of the head, the propriety of aiding the patient should be seriously considered.

No one is more willing than the writer to admit that "meddlesome midwifery is bad." Year after year we have heard this maxim uttered in lecture and debate. We are told that in the vast majority of occipito-posterior positions the head will descend, rotate, and be delivered with the occiput under the pubic arch. Patience is the watchword of accoucheurs in the management of these positions, and they are told to sit supinely by their suffering patients, watching the throes of labor until the child's head has descended, rotated, and been born. That this will occur in a large majority of instances no man of any experience can have a shadow of doubt; but there are cases in which the delivery of a living child without injury to either the mother or her offspring is perfectly practicable, and in which, if left to nature, the

result may be fatal to one or both. Judicious interference does not jeopardize either—nay, more: the skilful operator had better err in resorting to the forceps or version early than in postponing either operation too long. We do not hesitate to repeat, that we adhere to a rule adopted several years since, to gravely consider the propriety of interfering when the second stage of labor has continued two hours without any advance. Thus the fearful accident of uterine rupture is prevented—not treated—and the medical attendant avoids the disagreeable task of passing his hand through the laceration into the abdominal cavity to seize the child and drag it through the contracting wound, or of opening the belly and extracting it through the incision. Thus he becomes not the substitute for, but the handmaid and assistant of, nature. As such the intelligent physician goes to the bedside of his suffering patient, in the sore hour of her travail, with a full knowledge of the extent of his resources. Conscious of his powers and strong in their possession, he anticipates and prevents danger. "Meddlesome midwifery is bad!" Delay and timidity in operating are bad!

REMARKS UPON THE DIAGNOSIS OF PELVIC HÆMATOCELE.

BY CHARLES C. LEE, M.D.,
Surgeon to Charity Hospital, Asst. Surgeon to the N. Y. State Woman's Hospital, etc.
(Read before the N. Y. Medical Library and Journal Association, April 25, 1873.)

IN the few remarks which I shall submit upon the diagnosis of pelvic hæmatocele, I desire to be understood as referring only to the lesion as occurring in women, and to the non-traumatic forms of the affection. Properly speaking, pelvic hæmatocele is a symptom, not a disease. As the name indicates, it is simply a bloody tumor, or a collection of blood in the pelvis without reference to its source or etiology; and it may (and does) sometimes occur in men as well as in women, as I have twice had occasion to verify by post-mortem examination. But, although the sequela and symptom only of other morbid conditions, these are often so obscure, and the effusion of blood so significant and important in its effects upon the system, that the former are naturally overlooked and the latter treated as the essential disease.

When of traumatic origin, it may be due to any abdominal injury or surgical operation which involves division or other serious lesion of the intra-peritoneal blood-vessels or viscera. Thus in the two cases under my observation, where it was presented in men, the hæmorrhage arose from rupture of the spleen and from a gunshot wound of the omentum—both fatal, but only after the pelvic tumor had attracted attention for a number of days.

In women it sometimes follows ovariotomy when oozing or more rapid secondary hæmorrhage takes place from the pedicle; in other cases it is due to rupture of the Fallopian tubes during extra-uterine fœtation, although this lamentable accident is so rapidly fatal that the pelvic tumor seldom has time to display its characteristic symptoms.

Rupture of the ovaries, of varicose veins in the broad ligaments, of aneurism of the ovarian artery, of the vascular walls of ovarian cysts, have all been shown by autopsic examination to be the occasional cause of hæmatocele.

These cases are so rare that they may perhaps be ranked among the curiosities of medical observation. But what is commonly and properly understood by gynæcologists as "peri-uterine," "retro-uterine," or "pelvic" hæmatocele or hæmatoma—an effusion of blood into the pelvic peritoneum, due to arrested menstruation, reflux of menstrual blood, or to direct transudation from the pelvic vessels in a purpuric or chlorotic state of health, is more frequent, I am led to believe, than is generally supposed. In my own practice in this city during the last six years seven cases have occurred, all of them seen by other physicians, and in all the diagnosis as accurately made out as is possible without an autopsy; as only one of them died (from the effects of secondary septicæmia), that element of certainty was beyond our reach. This experience may possibly be exceptional; but, from the errors of diagnosis into which I was at first led in several of these cases, I incline to think they may often pass without recogni-

tion. I must, however, acknowledge my amazement, in reading a paper in the St. Thomas' Hospital Reports (of London) for 1870, to learn that no less than 53 cases occurred in the practice of its author in the last ten years. It is true that the author in question is Dr. Robert Barnes, who enjoys an immense consulting practice in obstetrics, and in recent or acute gynæcological disease; that four of the cases he details originated in rupture of the uterus, and five others in extra-uterine pregnancy, while in three additional cases the same cause was supposed to exist, but could not be proven, as the patients recovered: yet, even deducting these, we have a total of 41 in ten years—a ratio which, at first, seemed to me exceedingly large. On looking more carefully into this subject, however, I find that in the *Berlin Archiv für Gynäkologie*,* for 1870, Prof. Olshausen, of Halle, reports 34 cases of hæmatocele in 1145 gynæcological cases, while Seyffert, of Prague, had met with 66 cases in a total of 1272. Perhaps Dr. Barnes is right, therefore, when he insists that "it is only necessary to look with intelligence for these cases in order to find them."

In May, 1872, Dr. Alfred Meadows read a paper upon this subject before the London Obstetrical Society, in which he sharply questions the accuracy of diagnosis in a number of Dr. Barnes's published cases, and asserts his conviction that the frequency of the affection is much exaggerated. But in the discussion of this paper it was shown that Dr. Graily Hewitt had seen 12 or 15 cases within the last five years; Dr. Greenhalgh 25 cases;

* Band i., Heft 1.

Dr. Tilt 12 cases in 20 years. Dr. Braxton Hicks and Mr. Spencer Wells thought the lighter forms of the disease of common occurrence, but the cases of extensive effusion comparatively rare.

The recent German authorities, excepting Scanzoni, all consider hæmatocele to be frequent, while the French writers, to whom we are indebted for the elucidation of its pathology and nearly all its early literature, thought it a rare accident. Bernutz and Goupil, Huguier, Nélaton, Voisin, Viguès, each specify a few cases, and describe them with much minuteness; Nonat tabulates fifteen, of which one only was fatal, and Trousseau gives an elaborate lecture on the subject in the fifth volume of his "Clinical Medicine." This discrepancy of observation is explained by Dr. Tilt upon the supposition that many of the alleged cases of hæmatocele have been simply pelvic peritonitis, and he instances some of Dr. Barnes's cases in the paper referred to in illustration. In this country by far the most thorough and systematic account of the subject is given in Dr. Thomas's Treatise on the Diseases of Women. Ten cases have come under his observation, of which one died of general peritonitis and the rest made good recoveries. One of these was successfully treated only last month in the Woman's Hospital, and is to be published in the next No. of the *New York Medical Journal*. As the essential points in the diagnosis of hæmatocele are so graphically painted in Dr. Thomas' account of its onset, I shall quote his description entire.

He says: "The absolute occurrence of hæmorrhage is generally preceded by symptoms which are premonitory,

as fixed dull pain over the ovaries, derangement of menstruation, metrorraghia or prolongation of the menstrual discharge. The symptoms of the actual escape of blood will depend in great degree upon the nature and gravity of the accident which has given rise to it. Sometimes the affection occurs without any violent symptoms and almost without warning. It will be appreciated that this would be so if it were due to gradual reflux of blood on account of constricted cervix, or transudation, the result of purpura. Generally a sudden manifestation of symptoms occurs, and the accident is announced as rapidly as is cerebral apoplexy.

"Most prominent among the symptoms are—

Severe pain in the pelvis,
Faintness and coldness of the extremities,
Nausea and vomiting,
Metrorrhagia,
Uterine tenesmus—Tympanites,
Interference with bladder and rectum,
Febrile reaction.

"The patient feels as if a large and heavy body exists in the pelvis, and instinctively strives to expel it by the vagina.

"At times the pain complained of is very acute; at others it is a dull and heavy aching. These symptoms abate in severity in a few days, and are replaced by

Great exhaustion and feebleness,
Extreme paleness,
Tendency to chilliness,
Constipation—suppression of urine,
Great tympanites—Apyrexia."

He further states that vaginal touch reveals a tumor generally posterior to the vagina and almost closing that canal; that rectal touch merely shows closure of the bowel by pressure, and that abdominal palpation will disclose the presence of a hard mass extending to the superior strait or to the navel.

This description is not only terse and graphic, but admirable in all its details for such as have previously observed attacks of hæmatocele. To others, however, the very fulness of detail is confusing; and if the three striking symptoms of

Severe abdominal or pelvic pain,
Vomiting,
Faintness and collapse,

were alone specified, they would cover all the points an observer is likely to notice when called to a severe case of hæmatocele at the inception of the attack. In milder cases, and in those seen at a later period, it is of less importance to make an immediate diagnosis; for ample time is left to decide upon the nature of the disease and upon the treatment to be pursued. But if, as in the cases to be cited, an extensive effusion of blood be mistaken for bilious colic, for hysteria, for septicæmia, not only may precious time be lost, but lines of treatment adopted which will cause the sacrifice of valuable lives. It seems not improbable that, as these cases have occurred under my observation, they have or will occur in the practice of others; and it is precisely because they were cases of mistaken diagnosis—and so mistaken because they failed to present the local symptom upon which the decision of hæmatocele is supposed to rest

—that I think them worthy of being placed upon record.

Case I.—A. K., æt. 31, single, strumous and exceedingly delicate. During the last week of August, 1871, this patient, while menstruating, sat on the damp grass at a Long Island country place for several hours in the afternoon. On rising she felt slightly chilled, and the following night her flow ceased. On Sept. 6 I was called to see her for what seemed an agonizing attack of colic: the pain pervaded the whole abdomen, but was most intense on the left side of the pelvis; an unaccountable amount of shock and prostration accompanied this pain, the pulse was feeble and thready and there was uncontrollable vomiting. The matter ejected from the stomach was a thin bilious fluid, which came away in such quantities as to lead me to think the case one of bilious colic, the patient being sallow and obstinately constipated. The thready pulse was attributed to the shock which was believed to be nervous. On the following day the exhaustion was more alarming; several attacks of fainting occurred, and the patient's condition was so prostrate as to cause anxiety lest she should die of syncope. Under these circumstances her former family physician, Dr. McClellan, of Brooklyn, was called in consultation, and aided me with his advice. From the history of the case, hæmatocele was from the first suspected as possible, but the most careful vaginal examinations failed as yet to detect any enlargement. A very slight amount of œdema of the anterior vaginal wall was perceptible—nothing more. A week passed without any notable

change; the pelvic pain, nausea and vomiting, and the excessive prostration continued, and several fresh vaginal and rectal examinations were made without avail, until finally, 12 days after the beginning of the attack, a very slight bulging of the posterior vaginal wall was detected at the extremity of the cul-de-sac. Through the rectum this was more distinct, and gave evidences of fluctuation, and the existence of a diffused hæmatocele seemed evident. Two days later, during which the effused liquid had partially coagulated and become more distinct, Dr. Metcalfe was added to the consultation and confirmed the diagnosis. The subsequent history of this patient was somewhat remarkable. As the hæmatocele solidified the uterus was anteverted and fixed; a sharp attack of perimetritis ensued, in which the uterus itself participated; and, as this subsided, a diffused indurated deposit involving the left broad ligament and ovary filled up the left side of the pelvis, deflecting both uterus and rectum to the right. After a tedious convalescence and frequent attacks of severe dysmenorrhœa, the patient married in seven months from the date of her illness, and at once became pregnant. In the third month of her pregnancy she again sought advice for the relief of a dragging pelvic pain, which was most severe, as before, upon the left side. Examination revealed a gravid uterus flexed slightly to the right, and a diffused movable mass in the left iliac fossa, either ovarian or connected with the left broad ligament; while a third bulging tumor nearly as large as a fœtal head filled the right iliac space. Dr. Emmet, who saw the case with me at a period when the uterus

had nearly risen out of the pelvis, could not detect the tumor on the right side, but clearly made out that on the left, and thought it ovarian; and two months later Dr. Thomas, who also saw her at my request, thought the tumor on the left to be uterine in its origin. At full term she was confined; the labor was lingering and exhausting, and a large child was removed by forceps; the mother made a good recovery, and at present, five months since the confinement, no trace of the enlargement remains on either side.

Case II.—L. T., single, æt. 16, was placed under my care last July, by Dr. Tauszky, of the Mt. Sinai Hospital. When I called at her house I found a pale, delicate, hysterical girl rolling in bed in an attack of apparently intolerable pain; she was faint, prostrate, with a thready pulse and straining violently to throw up a little greenish mucus. The pain was abdominal, but could not be exactly located, and was alternately most severe at several distant points; slight abdominal pressure intensified, but deeper pressure relieved, this pain. The tongue was pallid and slightly coated; there was no fever. I felt convinced that I had to deal with a case of hysteria, and so stated to Dr. Tauszky, who had previously diagnosed an attack of ovaritis. All that I could learn of her medical history was, that she had menstruated irregularly for two years, and that she had sat on the outer deck of a ferry-boat while returning from Jersey City at night, and supposed she had taken cold.

This occurred a week or ten days previously to her

illness, and her last menstruation had ceased a full week earlier. A sharp attack of pain, with obstinate constipation, had followed the exposure on the ferry-boat; a physician was called in, and believing the case one of colic, had ordered several strong purgatives, which greatly increased the abdominal pain, and brought on a diarrhœa that proved very exhausting and intractable.

The case remained under my care for a week, with little or no change before hæmatocele was suspected. A slight tumefaction of the left iliac region was then observed, and led to more frequent and careful examinations of the pelvis: a vaginal examination was obtained, but nothing more could be detected except slight anteversion of the uterus—its mobility was not affected. Another week passed without important change, the stomach retaining almost nothing, the abdomen slightly tympanitic and tender upon pressure, the intense pain kept in check only by hypodermic injections of morphia. A second careful examination was now made per vaginam, and an indistinct bulging was perceptible through the posterior wall: when the finger was carried high up the rectum this was more distinct, but no outlines could be traced in it, nor was there fluctuation. The history of the case convinced me, however, that it was a hæmatocele, and not cellulitis of the utero-rectal space, as I at first imagined. In a few days more it had partially solidified, and Dr. Metcalfe, who chanced to be in town at the time, was called in consultation, and, after a very careful exploration, confirmed the diagnosis as in the previous case. The tendency to collapse, prostration from

loss of blood, and the other symptoms usually attending hæmatocele slowly made their appearance in this case after the first week; and for three weeks longer the patient remained exceedingly ill from these causes and from pelvic peritonitis. Recovery slowly ensued, without suppuration or discharge of the contents of the tumor.

Case III.—L. D., married, æt. 33, was placed in my care by the late Dr. Elliot, in the summer of 1870. This patient had long suffered from perimetritis and from a uterine tumor, supposed to be fibroma, the development of which had caused intense attacks of uterine tenesmus and much constitutional disturbance. She had married at 20, and, a year subsequently, given birth to a child while in Europe. Two years later, in returning home, she had miscarried at sea, and had nearly died of hæmorrhage. From this period until she came under my care she had been pregnant eight times and had invariably miscarried at the third or fourth month. The supposed cause was fatty degeneration of the placenta, for which chlorate of potash, absolute rest in the recumbent position, and all the usual remedies were employed without success. The results of these frequent abortions were marked anæmia, chronic uterine hyperæmia and, subsequently, metritis and perimetritis, followed by the development of a small fibroma from the *fundus uteri*. While recovering from the attack of perimetritis, and still very anæmic and feeble, she was seized, on the afternoon of July 6th, with violent emesis, abdominal pain, and faintness; the

pain was so intense as almost to produce loss of consciousness, and extended over the whole abdomen, which was tender to the touch and flatulent. I saw her within an hour of the attack, when her pulse was scarcely perceptible, her lips colorless, and her appearance that of approaching dissolution. There was at this time only an occasional effort at vomiting, which at first had been violent; this soon returned, however, and with very little effort on the patient's part a quantity of thin greenish fluid was ejected, sufficient to half fill a large hand-basin. This continued at intervals for several hours, during which time persistent efforts to resuscitate the patient were made without success. The stimulants given her by mouth and rectum were at once rejected, and a powerful hot-air bath maintained only a feeble warmth in the extremities. No immediate vaginal examination was made, as no uterine or pelvic symptoms were presented on the first day; but the most careful exploration of the abdomen failed to show any swelling or special point of tenderness. The whole abdominal surface was resonant on percussion; and, although there was much diffused tenderness, it was not increased by deep pressure. After a sleepless night the patient seemed next morning to be no better, and Dr. Peaslee saw her in consultation. He thought the case, as I did, one of severe indigestive colic, and recommended the use of large enemata of hot spearmint tea in addition to the stimulants that were being administered. The first enema came away unchanged and without effect, but a second brought away large quantities of flatus, and the abdomen became less tense

and tender. The pain, previously diffused over the whole abdominal surface, was now felt mainly in the right iliac region and in the perinæum, and the patient made frequent ineffectual attempts to evacuate the bowels: she also complained of uterine tenesmus, and another vaginal and rectal examination was made, but detected nothing. The nausea had continued during this day, although little or no vomiting occurred, and only the free hypodermic use of morphia kept the pain in abeyance. Up to this period repeated attacks of faintness or partial syncope also occurred, to relieve which, iced brandy and Vichy water were given and spice-bags applied to the epigastrium; the pulse was still very feeble and about 130, and the patient's face and lips remained blanched. As these symptoms were thought due to the nausea and to nervous shock, they excited no inquiry in other directions. On the next day, July 8, the patient again complained so urgently of the rectal tenesmus and the sense of weight in the perinæum, that a vaginal examination was again made, and now, for the first time, detected an obscure fluctuating mass behind the uterus. This was very indistinct, as the vagina was swollen and œdematous, and so tender as to make a prolonged examination very painful. The uterus seemed a little higher but perfectly movable, and the abdomen was still too sensitive to permit pressure or any attempt at conjoined manipulation. No inference was drawn from the vaginal examination, and for the next three days no change occurred, except a gradual amelioration in the patient's strength and ability to retain food.

On July 14 the pain and distress in emptying the bowel increased, and for the first time, eight days after the attack, the cause of the faintness and prostration was made evident; for, on passing the finger into the rectum, it was arrested an inch above the sphincter by a smooth, globular swelling, which completely occluded the bowel: this was moderately firm and tender, and gave an obscure sense of fluctuation when counter-pressure was made in the iliac regions. In the vagina it simply presented a bulging mass, which pressed the cervix forward and gave a thickened œdematous feeling to the posterior vaginal wall.

No doubt now remained in my mind that this was an hæmatocele, which had remained for several days so diffused as to cause no perceptible distention to either vagina or rectum, and had reached the posterior cul-de-sac so slowly from the patient being compelled to retain the supine position. As far as could be ascertained, the mass was not larger than a goose-egg; and the production of such a degree of shock and prostration by so small a loss of blood was only explicable by the exceedingly feeble and anæmic condition of the patient. No actual peritonitis occurred, although the pulse remained above 100 for a week; hot enemata were persistently used in the vagina and rectum, with the hope of causing a discharge by one of those outlets, but no softening occurred in the tumor. In a month the patient was removed to the sea-shore, and under the stimulating effects of the change of air and scene, the mass slowly diminished in size and disappeared, leaving only a slight increase in the deposit left by the former at-

tack of perimetritis. At present the patient is in moderately good health, and but slightly incommoded by the fibroid tumor, which is the sole remnant of her pelvic disease.

No satisfactory explanation for the occurrence of the hæmatocele could be found in this case, as there had been no previous menstrual irregularity and no evidence of unusual pelvic congestion: the predisposing cause is probably to be found in the chlorotic state of the patient.

Case IV.—For the following interesting case I am indebted to the kindness of my friend, Dr. John G. Perry, in whose practice it occurred:—

Mrs. C., æt. 25, had had one child at full term, and two miscarriages occurring within 18 months, the last in October, 1872, at about the sixth week of pregnancy. Four or five weeks after this a flow appeared similar in quantity to the catamenia, which, from its date, it was supposed to be; but, proving rather exhausting, it was thought best to check it at the fifth day with gallic acid. This produced no effect for 24 hours, and Dr. Perry then tamponed the vagina for two days, by which time the discharge was reduced to a mere "show." On the third day after this the patient, who was becoming dyspeptic, was advised to sit up for her meals, which she did with benefit for a couple of days. On the following afternoon, Dec. 3d, her husband assisted her to rise before dinner; and she had just seated herself when she suddenly became very faint; and, in spite of the administration of brandy, lost con-

sciousness: when she recovered, her respiration was oppressed and painful, the pain being confined to the left hypochondriac region. In three hours Dr. Perry reached the house, and found the patient pale and anxious in bed, with tympanitic abdomen, and great tenderness in the left iliac and hypochondriac regions. The pulse was feeble, 120 in the minute; the tongue dry and clean, with occasional eructation of gas from the stomach; the bowels were slightly constipated, but had acted imperfectly on the previous day from the effect of citrate of magnesia.

The uterus was tender on pressure, and a little enlarged, with patulous os, and painful when pressed towards the left side, but not otherwise. From these symptoms Dr. Perry inferred the presence of fæcal accumulations about the sigmoid flexure, to dislodge which a large enema of warm water and oil was given without effect.

Dec. 4.—Condition unchanged: stomach still acid, lips and gums pallid, skin cool, urine scanty, but otherwise normal; abdomen still tympanitic without much distention, no increase of tenderness. At 12 (noon) another visit was made, when the extreme pallor and prostration of the patient at once attracted attention; the pulse was feeble and too rapid to be counted, the eyelids drooping, the angles of the mouth drawn down, the patient apparently unconscious and moribund. While Dr. Perry was trying to rouse her, the pulse became imperceptible: he seized a glass of water which chanced to be at hand, pressed it to her lips, and raised her head; for an instant there was no response, but

suddenly she seized it with her lips, and in a moment had drained its entire contents.

A second glass was offered, the patient still pulseless; this was also emptied, a deep sigh followed, and the pulse became apparent. Two more glasses were drained in like manner within twenty minutes. At the moment of this sudden prostration the abdomen, which was somewhat exposed, became visibly enlarged and distended, and so perceptible that Dr. Perry remarked it to a relative of the patient who was present. When consciousness was fully restored the patient complained so urgently of distention of the bladder that a catheter was introduced, but only a small amount of urine was obtained.

A fresh vaginal examination revealed nothing new excepting a slight induration in the *anterior* cul-de-sac, slightly increased immobility of the uterus, and some perceptible fetor in the uterine discharge; abdominal condition unchanged. At 9 P.M. the temperature was 100°, pulse 150, and a little color had returned to the lips.

Dec. 5.—Dr. Thomas was called in consultation and recognized the conditions above described; but, from the gaseous distention and the fetor of the discharge, he thought the case one of probable septicæmia. As there had been no sweating nor slowness of the pulse, dilated pupils, nor cerebral symptoms, Dr. Perry felt unwilling to accept this view of the case.

Dec. 6.—Patient again seen by Dr. Thomas, who, after making a careful examination, suggested that fluid had regurgitated through the Fallopian tubes into the peri-

toneal cavity, producing collapse with the symptoms above detailed, and advised washing out the uterus; but as the patient was extremely feeble, this was deferred until the next day,

Dec. 7, when, the patient being stronger, the uterine cavity was thoroughly injected. The water was rendered turbid by the discharge, and brought away a small clot which showed no signs of decomposition.

Dec. 8.—Urine secreted more freely, bowels still constipated, pulse 140, pain diminished but flatulency increased; in the afternoon the uterus was again washed out, but the patient began to vomit again, and, towards evening the emesis became violent and excessive.

Dec. 9.—Respiration labored, vomiting still continued, but the patient retains iced-milk without difficulty; the pulse being firmer, Dr. Perry made another careful vaginal examination, but could elicit nothing whatever beyond what had been previously detected. Feeling confident from the continued rectal tenesmus that fæcal accumulation existed in the colon, he again administered a copious injection of oil and hot water. It was returned without effect, but was repeated in two hours, and a portion retained. In two hours more it was repeated a second time, and when ejected it seemed clouded by minute particles of fæces. Encouraged by this, he again repeated the enema in six hours, and brought away two small scybalous masses. From this time until the 16th, seven days, injections were repeatedly given each day, and evacuation after evacuation followed, until more than seventy evacuations of fæcal matter were procured. As the bowels were relieved,

the vomiting and acidity of stomach diminished, but the pulse remained from 130 to 160. On the 17th, although the accumulation seemed thoroughly removed, the pulse mounted above 160, and was very feeble. The tongue, which had been quite clean, now became furred and dry, the skin moist and relaxed. A swelling now became perceptible in the left iliac region, which slowly increased until it rose to the level of the anterior superior spinous process of the ilium, and, laterally, to within one inch of the linea alba; it was soft and painless, distinct from the uterus, which retained its former position, while the induration formerly noticed in the anterior cul-de-sac remained unchanged. On the 19th December it had softened, and fluctuation was clearly produced by gentle percussion made upon its summit with the finger in the vaginal cul-de-sac. Hot water enemata were now thrown into the rectum to induce the mass to open there, which, at the end of three days, was successful. On the 23d December, after a hot enema had been given and ejected, the patient had a sudden attack of expulsive pain, when, with a violent burst, a quart or more of semi-fluid, partially decomposed blood, was discharged and fortunately secured, as the bed-pan had been placed under her when the warning was given.

Up to ten o'clock in the morning of December 25th, this same fluid, mixed with fæcal masses, continued to pass from the bowel, and amounted in all to more than two quarts. A microscopical examination confirmed its character.

Dec. 26.—A clot as large as a goose-egg was passed

from the rectum, with a quantity of fæces and bloody serum. This was fresh, highly-colored, and indicative of a more recent effusion; and, as the pulse was feeble and the patient complained of unusual exhaustion, secondary hemorrhage was feared, and the internal use of gallic acid was substituted for the injections.

Jan. 1.—The injections were resumed, as the patient was stronger and no evidences of hæmorrhage remained.

Jan. 15.—The swelling in the iliac region is now diminishing, and the mass behind the uterus contracting and drawing that organ to the left side; pulse 118.

Feb. 1.—Pulse 110; patient sitting up; bowels moved naturally.

Feb. 9.—Menstruation appeared and ran its course naturally, and with no pain of special note.

Feb. 14.—Catamenia ceased; pulse below 100 for the first time, and the patient practically well.

What inference, if any, is to be drawn from cases such as these? Clearly, that hæmatocele sometimes, and perhaps often, occurs without recognition; for, if it be liable to be overlooked when the effusion has been so great as to cause profound shock and exhaustion to the patient, the lighter forms of the malady are much more apt to escape detection.

Its occurrence as a possibility should be borne in mind whenever we meet with cases of obscure shock and sudden prostration in women; and, if to this feature be added severe abdominal or pelvic pain, and retching or persistent vomiting, without other evident cause, its existence will be highly probable. It is not necessary that the rectal or vaginal tumor should exist

at the beginning of the disease, when the patient is supine and the blood diffused throughout the pelvic cavity. This is not likely to occur immediately, although its absence renders an absolute diagnosis impossible. In milder cases the conditions with which it is most likely to be confused are pelvic cellulitis and pelvic peritonitis. I say nothing of uterine displacements, as very little skill or knowledge is requisite to discriminate between these conditions and the tumor caused by hæmatocele; the uterine sound alone is necessary. As regards cellulitis, although the inflammation is as sudden as the onset of hæmatocele, the swelling it produces is never sudden; moreover, the swelling is generally lateral at first, in or about the broad ligament on either side, while in hæmatocele it is believed to be always in the posterior cul-de-sac, although Courty* states that Chassaignac had charge of a case where the effusion was entirely confined to the anterior cul-de-sac. In cellulitis the tumefaction is hard and resistent from the first, while in hæmatocele it is at first soft and fluctuating, and only hardens as the contents gradually coagulate—the contrary being here, also, true of cellulitis, where the swelling gradually softens, especially when it terminates in abscess.

In *pelvic peritonitis* the differential diagnosis is perhaps more difficult, as the pain is here not only sudden but sometimes quite severe; but ordinarily it is certainly less acute than in hæmatocele, and never produces

* Mal de l'utérus, p. 912.

collapse or fainting, which is so strongly indicative of internal hæmorrhage. Like cellulitis, it commonly occurs after parturition or follows operations upon the uterus, while hæmatocele is most common after an arrested menstruation, although it may occur at any period. The pelvic swelling that follows peritonitis is less notable in size than in ordinary hæmatocele; it forms very slowly and is hard and "boggy," without elasticity or the feeling of fluctuation. When pelvic peritonitis occurs during menstruation, as occasionally happens, the discharge is suddenly arrested or suppressed; whereas hæmatocele occurring at such a period does not necessarily arrest the flow. Both cellulitis and pelvic peritonitis are believed to be always associated with functional activity of the generative organs; while traumatic hæmatocele may evidently occur at any time, without regard to either menstruation or parturition.

Although it has not been my intention to discuss either the prognosis or treatment of hæmatocele, it may be stated in general terms that the prognosis is good, and the best treatment a judiciously expectant one—by rest, opium, gallic acid and the local application of cold, if the hæmorrhage be severe, in the first stage; in the second, by tonics and hot injections into the vagina or bowel, limiting evacuation of the contents of the tumor to such cases only as threaten to cause septicæmia.

REMARKS ON OVARIAN PHYSIOLOGY AND PATHOLOGY.*

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I PROPOSE in this paper to consider some points in connection with the physiology and pathology of the ovaries; and I have chosen this subject, first, because of its extreme importance; and, secondly, because I believe it to be one of great difficulty, around which a good deal of obscurity still clings, and much of which, I fear, I shall be unable satisfactorily to remove. That the subject is an important one I need hardly say, because, as we know, the whole generative function depends upon the due performance of ovarian energy: and when I speak of "the generative function," I mean not only the function of utero-gestation, but the entire physiology of menstruation; for I may take it for granted now that without ovulation there is no menstruation. Therefore the physiology of the ovaries is the very central point in the generative system, and they are, if I may so say, masters of the situation, from the very commencement of puberty up to the decline of the procreative period. It would be well, indeed, and a subject for congratulation to the whole race of womankind, if, with the decline of the generative period, all chance of further trouble with the ovaries

* Lecture delivered in London, and communicated especially to this Journal by the author.

ceased. But, unfortunately for women, we know that just at this period some of the most formidable of all the ovarian diseases are of frequent occurrence. It is impossible, therefore, to exaggerate the importance of this subject; for its value, physiologically and pathologically, is commensurate with the very existence of the human race.

But, unhappily for us, upon whose skill and judgment depends, in very many instances, not only the health and comfort of individual women, but the existence of numberless others whose very being is subservient to what I may term healthy ovulation,—unhappily for us, I say, the subject which I have chosen for present consideration is surrounded with doubts and difficulties compared with which even the obscure diseases of the brain is light itself. That this statement is not an exaggerated one, I need only appeal for proof to the common experience of every one conversant with the subject. At all events, I can confidently say for myself, that the longer I live and the more I see and know of ovarian pathology, the less I seem to know and the more I have to learn. But then the consciousness of my ignorance is to me the most hopeful augury of future knowledge; for there is nothing so damaging to scientific reputation, nothing which so effectually bars the way to progress, as self-satisfaction with imperfect knowledge, contentment with blissful ignorance. There are many, unfortunately, who talk and write glibly about ovarian diseases, as if they were among the best known, most easily diagnosed, and most successfully treated of all human ills. Their contentment

a subject of pity to those who seriously wish to advance the science of gynæcology, for they are the very persons who do most to hinder it. An honest confession of ignorance is at all times, but especially in medical matters (rare, unfortunately, though it be), a far healthier sign than complacent satisfaction at assumed but baseless knowledge. I hope I may be pardoned for this apparent digression,—it is indeed very much *ad rem*,—because I wish at the outset to state, distinctly, that I aim quite as much at stating what we do *not* know, at least what *I* do not know, as what we do; for I believe that this paper will be just as valuable, perhaps more so, by suggesting certain lines of inquiry along which investigation is still much needed, and from which careful, accurate, unbiassed, and intelligent observation will be sure to produce most valuable results, which will be lasting for all time.

It will be necessary to preface my remarks by a brief allusion to the chief anatomical features of these organs, especially in regard to their vascular and nervous supply; because, as I shall presently have occasion to remark, some of the at present doubtful, but most deeply interesting problems connected with ovarian pathology will have to be solved by reference to anatomico-physiological considerations, and we can only hope for a solution of some of our present difficulties by most careful attention to these facts.

The ovaries are normally situate one on either side of the uterus, a little posteriorly to it, and about an inch removed from its lateral borders. They are removed from the vaginal roof about 1½ inches; and they can only

be reached by a digital vaginal examination when either the vagina is morbidly relaxed, or when they are themselves, with or without the uterus, depressed so as to come within reach. They are situate upon or in the folds of the broad ligament, on its posterior aspect. The supply of blood to the ovaries is very free indeed, and each ovary is supplied from three sources: first, the spermatic artery, a vessel which comes direct from the aorta, high up in the renal region, in the situation originally occupied by the ovary; this branch descends with the ureter behind the peritonæum, and having entered the pelvis, it passes between the folds of the broad ligament, where this joins the pelvic wall, at the sacro-iliac synchondrosis, and so reaches the hilum of the ovary. Here it anastomoses with the two other sources of supply; namely, the ovarian branch of the uterine artery and the Fallopian branch of the same vessel. Having permeated the ovary as a minute plexus of capillaries, the blood is again collected in venous radicles, which finally emerge from that organ at its hilum, where they are grouped together in one very complex network, forming what is called "the bulb of the ovary," which is nothing more than a confused mass of veins constituting a kind of venous plexus in which the ovary seems as it were imbedded. These veins unite freely with the uterine venous plexus, and end finally in the spermatic veins, that of the right side going into the vena cava, just below the junction of the renal vein with that great trunk, while that of the left side ends in the left renal vein.

Such is, briefly, the arrangement provided for the

proper supply of blood *to* the ovaries and for its due return *from* them; and, taking a general survey of these provisions, the following points require, I think, to be noted. I refer to them now, because I think I shall be able hereafter to show you that their consideration is of some importance in a pathological point of view, as it may help us to understand more perfectly some of the symptoms which accompany ovarian diseases. Moreover, I am not aware that the points to which I shall allude have hitherto attracted the attention of gynæcologists; certainly they are not mentioned in any work on the diseases of women with which I am acquainted. Yet it seems evident, even on the most cursory examination, that the arrangement and distribution of the blood-vessels—arteries and veins—of any organ must have a most important bearing upon its diseases, especially those which are characterized chiefly by changes of vascularity; and this seems the more important in the case of the ovary, when we remember that the performance of its functions leads in all cases to the most striking increase of its blood-supply, and to periodical, though temporary, turgescence of all its blood-vessels.

Now, the point to which I would first call attention is the free anastomosis which is carried on between the principal ovarian artery, the spermatic—that which supplies it with the largest amount of blood—and the two branches of the uterine artery, namely, the ovarian and the Fallopian branches. Why is this? we may be quite sure there is some reason for it. Nature, as we call it, is not prolific in arrangements of this kind, un-

less there is some definite purpose and object in it; and inasmuch as the Fallopian tube and that part of the uterus whence the ovarian branch of the uterine artery comes are unquestionably of secondary importance as compared with the ovary, it can hardly, I think, be supposed that the elaborate arrangement to which I have referred is primarily for the advantage of either of those parts. We may then, I think, reasonably assume that this provision is for the better discharge of ovarian functions. No doubt such an arrangement as this may, under certain circumstances, be of use to the inferior and subordinate parts; but it is not in the nature of things, I think—it would, indeed, be contrary to the ordinary workings of nature—that such careful provision in the way of vascular or nutritive supply should be made *primarily* for structures of lower physiological importance. *Secondarily*, no doubt, the arrangement in question may prove very convenient and useful to those parts.

It might perhaps be thought by some that though ordinarily, in the non-pregnant state, the arrangement of the blood-vessels about the ovary and their free anastomosis is of little service to the uterus, and none to the Fallopian tubes, yet, when pregnancy exists, the value of an extra blood-supply, other than that of the uterine artery and such as is afforded by the anastomosis with the spermatic artery, would be very great. But, surely, to be of any use this extra source of supply must increase in something like a fair proportion to the demand made upon it, and that would involve an enormous increase in the size of the spermatic trunk: otherwise it would be

practically useless. But if this great enlargement really took place, see what consequences it would involve. For one thing, the ovary would certainly become considerably hypertrophied; its functions would be vastly more active, and pregnancy under such circumstances would almost inevitably lead to ovarian disease, because there could not be increased supply of blood to the uterus through the spermatic artery without also adding considerably to the blood-supply of the ovary.

There is not, however, one tittle of evidence in support of any such view, and no reason whatever for supposing that the smallest change takes place in the supply of blood to the ovary during pregnancy—certainly not in the way of increase. Therefore, again I say, the arrangement in question is not *primarily* for the advantage of any of the inferior parts of the generative system, either during pregnancy or at other times.

If, then, reason and analogy oppose the idea that this free anastomosis, providing as it does copious blood-supply to the parts in question, is for the primary benefit of either the uterus or the Fallopian tubes, I am, I think, fairly entitled to claim the advantage which accrues, or may accrue, from this arrangement, on behalf of my client the ovary, whose cause I am espousing in the present instance.

In the first place, then, I think that such an arrangement is, if I may venture to say so, by far the best that could be adopted in the case of an organ which is subject to such remarkable periodical affluxes of blood; for it is obvious that the necessary supply is provided much better and more equably in this way than it

could be from any single trunk. If we compare the ovary, for instance, with its regular periods of excitement and quietude, with the kidney or the liver, which perform their functions in a uniform manner, we seem at once to recognize the propriety and fitness of their different circulations. The feasibility of this explanation seems strengthened, again, by observing the peculiarity in the circulation provided in the case of another organ—the uterus—which is also subject to these periods of excitement. Here the most elaborate provision is made for the freest anastomosis between its several sources of blood-supply; and I do not doubt that the purpose of all this is that which I have indicated, for we can imagine what confusion there would be during the menstrual period if the uterus were supplied with blood after the fashion of the kidney, for instance.

Again, the importance of the ovaries in regard to the continuance of our race is such, that we can imagine very special arrangements being made for the performance of their function. There is an old saying about a cautious man being careful to have more than one string to his bow; and in the case of the ovarian channels of nutrition it is clearly quite as well, to say the least of it, that if one were cut off it should have others to fall back upon. This possibly may have some relation to the point in question, though I only throw it out as a suggestion; for I am inclined to think that the other explanation I have offered best accords with the facts and is most consonant with physiology.

Leaving now the arteries, let us glance a moment at

the peculiarities in the *venous* circulation. And here, again, the first thing which attracts attention is the free communication existing between the several uterine and ovarian venous plexuses. There can be no doubt, I think, that this arrangement has reference to the complete unity which pervades the functions of these two organs; for it should be borne in mind that these venous plexuses have another function to perform besides that of merely acting as channels for the return of the blood from these parts. If this were all, there would be no need for the very complex arrangement which exists; but we know that the veins here fulfil another most important office, upon the due performance of which it depends, in part, whether or no the product of the ovaries in the married state shall or shall not be wasted. An injection of this complex system of veins demonstrates at once their office; for both the uterus, Fallopian tubes, and ovaries are immediately erect so soon as the veins are full; and inasmuch as excessive activity in the arterial system, which is the necessary consequence of healthy ovulation, involves equal turgescence of the venous system, erection follows as a natural result, and by this means the apposition of the fimbriated extremity of the Fallopian tube to the ovary is secured. The distance between the ovary and uterus is thus bridged over, as it were, and a route provided for the escaped ova to the spot where they are afterwards to develop under the influence of impregnation. Another point to be noted in these veins is *the absence of valves;* this I believe has reference to the same function of

Such, then, being the physiology of the venous system, it is scarcely possible to exaggerate its importance in generation; and in the incomplete performance of its allotted duty we may recognize, I think, one of the many possible causes of sterility; and one, too, which unhappily is as far removed from the region of certainty in diagnosis as it is hopelessly beyond the reach of therapeutic art. So much, then, for the vascular supply. We come now to the consideration of the nervous arrangements, and here the following points seem especially worthy of notice. In the first place, the entire nervous supply to the ovaries is derived from the single source of the spermatic plexus; but this plexus has a somewhat complex origin, for it is formed from three sources: there is, first, a branch or branches from the renal plexus; secondly, branches from the aortic plexuses; and thirdly, branches from the hypogastric plexus, which latter receives communications from the second, third, and fourth sacral nerves. Of these three sources, the branches from the renal plexuses are by far the largest; and it is important to notice this, because I shall allude hereafter to some consequences which seem to me to flow from this connection. Now both the aortic and the renal plexuses are situate in the abdomen, a little below the epigastric region. The latter is near the kidneys, above the renal arteries; the former between the origin of the superior and inferior mesenteric arteries; so that the ovarian nerves spring from a very high source in the abdomen, and through the various sympathetic plexuses they are brought into intimate relation with the several abdominal viscera, especially with

those about the region of the diaphragm, where are situate the solar and semilunar ganglia. It is evident, then, that a well-defined nervous communion exists between these several parts, and may in fact be demonstrated anatomically. All this helps to explain, I think, much of ovarian pathology which must otherwise remain obscure. It should be noted also, and this is of great importance from a pathological point of view, that the same plexus of nerves, namely, the spermatic, which supplies the ovary, supplies also the Fallopian tube and the upper part of the uterus, so that a thorough sympathy both through the vascular and nervous systems is established between these parts, the effect of which is, that, while clinically the specialty of the ovary is apt to be somewhat masked, yet when its individuality is once clearly established by other signs, we may, remembering this nervous connection, look for a certain group of symptoms in which the parts supplied by this same set of nerves will be intimately concerned.

I stated just now that the spermatic plexus is formed chiefly out of the renal and aortic plexuses; but it must be borne in mind that the aortic plexus ends in the hypogastric, which is the great source of nervous energy to all the pelvic viscera, and from this branches are also sent to the ovary. Now the hypogastric plexus receives, as I have said, numerous communications from the third and fourth sacral nerves; so that in this way, as well as through the various prevertebral sympathetic ganglia, all of which are pierced by branches from the anterior spinal nerves, the pelvic and other viscera are

brought into close and intimate relationship with the spinal cord, and of course also with the brain.

Such then being the nervous connections of the ovaries to the uterus on the one hand, as their companion in physiological work, and to the rest of the organism, organic and animal, we can understand, in part at least, *how* it comes to pass that these little bodies are enabled so powerfully to influence the whole system in the performance of their normal functions; and, reflecting upon this, we gain some sort of insight into the manner and degree of their action upon the organism in certain morbid conditions. I do not think it would be possible to exaggerate the importance of this influence. How great it is may be imagined by the fact, which is well known, that the withdrawal of the ovarian function after it has been once established, and even its non-development at puberty, but most of all the former, is sufficient to change the character of the whole being, both in her physical and moral natures. There is no sexual difference in this respect. See, for instance, the influence which castration exercises upon the individual. We all know the wonderful effect which it produces upon the voice, though it is very difficult to explain in what way that effect is produced. Nor is this limited in its application to the human species, for it has often been remarked that singing-birds produce much sweeter notes at the time of pairing and during the breeding season than at any other time of the year. In the human subject, the change of voice from childhood to manhood seems to be closely related to genital development; and I have frequently observed

that in persons of full voice, even the changes incidental to menstruation—or, I ought rather to say, to ovulation—give rise to marked changes in the quality of voice. It might perhaps be objected by some, that, admitting the fact of the changes in question, it is by no means proved that they stand in the relation of cause and effect; for while it is allowed that the two are contemporaneous, yet, as other changes also take place in the organism at the same time, the phenomena of which I am speaking may be due quite as much to these latter as to the ovarian modifications. To this objection I would reply, that the fact that with the non-development of the ovaries, or testicles, all other developmental changes taking place as usual, the phenomena in question do not occur; and, again, the fact that extirpation of the ovaries, or testicles, without any change in the organism, will often lead to very much the same results, is, if not absolute proof, at least the strongest possible evidence in favor of the view I am advocating.

If such be the case, then, it follows necessarily, I think, that morbid action in these parts may be expected to produce changes commensurate with the extent and importance of the physiological processes. For, as I have on many occasions remarked, pathology is, if I may so say, first-cousin to, I had almost said twin-brother with, physiology; so closely indeed are they related, that it is almost impossible to say, in some cases, where physiological action ends and pathological change begins. In cases, for instance, which are characterized merely by excess or diminution of secretion or excretion, it is not possible to draw the line

sharply between the two states. Hence it is that the study of physiology becomes of so much practical importance to the physician or surgeon; for indeed it is well-nigh impossible to understand any morbid process, either in the system at large or in any particular organ, until a clear idea is arrived at of general or special physiology. It is upon the physiological basis of ovulation that we must found our system of ovarian pathology, and it is the strength of this conviction in my own mind which has induced me to link these two subjects together in this paper; although I fear the present state of our knowledge does not permit me to use that precision of language which springs from definiteness of thought and accuracy of information. An honest expression of doubt is, however, always better than a positive, dogmatic statement which has no better basis than conjecture; and to know what we do not know gives far better hope of ultimate knowledge than the contentment which springs from ignorance.

One of the first subjects which claims attention in considering the physiology of the ovaries is, the changes which take place in them during ovulation; I was about to say,—in other words, the changes which occur during the time of menstruation, or at least during the menstrual life of the woman. But though it is, I believe, commonly supposed that during childhood, up to the time of the first occurrence of menstruation, and again after the final cessation of menstruation, the ovaries do not perform any function, but are, in fact, in the one case developing, and in the other case declining, yet I am satisfied, from my own observation,

that they are by no means in an inactive state; and though it is true that their action at those periods does not eventuate in the phenomena of menstruation, yet there can be no doubt of their activity, and we should be in danger of overlooking most important pathological processes if we shut our eyes to what occurs at the times in question. The fact that pregnancy has occurred both before and after menstrual life is proof of ovarian activity and of healthy ovulation. Moreover, if it were true that at these periods the ovaries were simply passive, then it would seem to be, if not impossible, at least most improbable, that they should become the seat of disease. So far from this being the case, however, we know that at the times in question, and especially at the later period, when these organs are supposed to have simply died away, as it were, they are subject to the most serious of all organic diseases. Nor can it be said that the disease in question is one indicative of functional declension, or of simple inactivity and degeneration. On the contrary, statistics prove to demonstration that this disease is most common where the ovaries are most active; and therefore it is, I think, fair to assume, that the simple fact of the occurrence of the disease in question before or after menstrual life is in itself evidence of ovarian activity, and of the possibility of the ovaries influencing the system physiologically and pathologically;—it is an instance, in short, where, contrary to the more general rule, pathology throws some light upon physiology.

Now, in regard to the mode in which the ovaries act physiologically upon the uterus, whereby ovulation

leads to menstruation, it is of course evident at once that the blood-vessels are the structures principally involved in the phenomena; but it is at least equally certain that, though nutritional or functional changes may take place quite independently of the nervous system, inasmuch as in many organisms no nervous system exists, yet where complicated organs and a complicated nervous system are present, and especially where the blood-vessels are supplied with a distinct set of nerves whose function appears to consist in controlling and regulating the blood-supply, it cannot be doubted, I think, that in such circumstances the nervous arrangements of an organ play a most important part in its physiological rôle; and when we consider how very complex is the nervous system of the female generative organs, how intimate is the relation which exists between the ovaries and the uterus in regard to their nervous supply,—when, moreover, we consider the marvellous activity displayed by the ovaries during ovulation, and the direct connection and free anastomosis which exists between the blood-vessels of the ovaries and those of the uterus, we cannot be surprised at the consequences which result from the maturation and discharge of ova; on the contrary, given the anatomical conditions which we know exist, and we might almost certainly have predicted beforehand that such results would ensue. Nor are these considerations limited merely to physiological actions. On the contrary, if they have any bearing upon physiological phenomena, they must also be related to morbid processes; —it is, in fact, impossible to separate the two classes of activity, for in many cases we cannot draw the line be-

tween healthy and morbid action; we cannot tell where physiology ends and pathology begins, and we are often as powerless to control the one as to regulate the other.

But, admitting to the full the influence of the local nervous system upon the physiology of these parts, we have still not quite answered the question as to how that influence is exerted. Let us glance for a moment at the phenomena which occur in the ovaries themselves during the preparation and escape of an ovum; and as I prefer to illustrate what I have to say on this point by reference to what I have myself observed, I will relate a case which came under my notice some ten years ago, because it shows very clearly the extent and character of the changes which take place under these circumstances.

The patient was a single woman, twenty-three years of age, and gave the following history. From birth she had had a swelling in the right inguinal region, which she had always been taught to regard as a rupture, but she had never worn anything for it, and it gave but little inconvenience; it never disappeared, nor did it increase in size, but she occasionally suffered pain from it. At fifteen she began to menstruate, and continued doing so at regular intervals, always with more or less pain, but this had no effect upon the inguinal swelling. About three years ago she first noticed that this swelling had increased in size, or rather that another one had come below and internal to the origi nal one, and that it was very tender and painful; she says it came quite suddenly, but how she knows not; she had been stooping just before she perceived it. At the

menstrual period following this she suffered most violent pain, different to any she had experienced before; it preceded the discharge, began at the lower part of the last-named swelling, and extended along the groin and through the inside to the back; at the same time the tumor much increased in size. From that time to the present she suffered in a similar way, sometimes more acutely, so that she was a week or more at every monthly period obliged to keep her bed. Sometimes the tumor would swell up to the size of two fists, and be exquisitely tender to the touch. In the interval between the menstrual periods she suffered little or nothing from it. She has been compelled to give up her situation as a servant, and has become very hysterical and delicate. About three months before I saw her she had been into one of the London hospitals, and I learned that the opinion there formed of her case was, that she had a congenital inguinal hernia, and that the bowel was probably adherent to the sac, as it never could be returned; it was thought also that the lower and more recently-formed swelling was due to the presence of the right ovary. The surgeon under whose care she was, after a consultation with his colleagues, declined to interfere, thinking it unwise to run the risk of an operation unless symptoms of strangulation of the bowel should come on and render it absolutely necessary in order to save her life.

I first saw her July 27th, 1861, and after one or two examinations had no doubt about the nature of the lower tumor—that it was ovarian. It was then situate in the upper part of the right labium. Of the upper

swelling, which was to the right of the internal abdominal ring, I could determine nothing. I, however, strongly advised that something should be done surgically. She was then under my care in a private Home for Incurables, where she was destined to remain all her life if nothing could be done to cure her. I accordingly consulted my friend Mr. Lawson, who quite agreed with me both as to the nature of the case and the course to be adopted. In this Sir W. Fergusson also agreed. It was thought probable that the upper tumor was a hernia of the omentum, but, as it had given no inconvenience, there was no need to interfere with it.

On the 27th August, the patient being under chloroform (the menstrual period had passed about a week), Mr. Lawson proceeded to remove the lower tumor by an incision about four inches long made over the course of it. There was no difficulty in separating the tumor from its attachments of fat and cellular tissue; it was not contained in any cyst or sac that could be discovered; but its upper portion or pedicle, which went through the abdominal ring and was probably part of the broad ligament, was found distended with fluid. The cyst was punctured and about an ounce of fluid let out; then, as much of the pedicle having been drawn out as could be done without difficulty, a ligature was tied round it and the tumor separated. The pedicle was afterwards secured to the edges of the wound, which were brought together by silk sutures. During the operation the abdominal cavity was opened, and along the pedicle a probe could be passed for about three inches.

The tumor, which measured about two inches in length and one in diameter, proved on section to be the right ovary; it had, however, undergone remarkable structural change. Instead of presenting the usual dense, compact appearance, it contained throughout numerous irregularly-shaped spaces, varying in size from a pin's head to a quarter or even half an inch, and all were filled with the same kind of serous fluid as flowed from the pedicle. These cells appeared to communicate with one another, and the whole organ to be infiltrated, as it were, with the fluid in question. There were no proper Graafian vesicles to be seen. The end of the ovary near the stalk was cup-shaped, and presented many openings communicating with the cells already mentioned; from these, with gentle pressure, fluid escaped. The whole weighed about 3½ drachms.

The patient subsequently did very well; but about a week after the operation some inflammation arose in the wound, accompanied by a good deal of tenderness. A small abscess formed where the pedicle was secured, probably extending to the pedicle itself. It burst, however, after a few days' poulticing, discharged freely for a day or two, then healed up, and in less than a month the patient was quite well.

At the first menstrual period after the operation there was some pain in, and increase of, the swelling yet remaining; it was, however, of but little importance, and in the two subsequent periods no pain or inconvenience has occurred. Since the operation I have submitted the ovary to a careful examination, and it appears probable that that portion of the pedicle which was

left, and then thought to be a portion of the broad ligament, was in reality part of a cyst which had formed at the end of the ovary nearest to the abdomen and to the uterus when *in situ*. This supposition is strengthened by the cup-shaped appearance observable at the end of the ovary, where were also seen some openings as if into smaller cells, and further by the peculiar appearance of the ovary itself, which, as I said, contained numerous interspaces of different sizes.

Now the point which I wish more particularly to insist upon here is, the very great increase in the size of the ovary during, or rather preceding, menstruation; and although no doubt the size described as "two fists" was, in part at least, due to something not ovarian, yet it is certain that the ovary did very considerably increase in size at each catamenial period. It might perhaps be thought that the changes I have described as occurring in this case were somewhat exaggerated and abnormal, owing to the unnatural position of the ovary, and that therefore they cannot be taken as a fair criterion of what occurs under more natural and favorable circumstances. To some extent no doubt this is true; but the following case goes far, I think, to dïspose of this objection. It occurred in the practice of my colleague, Mr. Christopher Heath, and bears out the statement just made in regard to the magnitude of the changes which take place in the ovaries during the rupture of a Graafian vesicle. I had the satisfaction of seeing this case also, and of observing the following phenomena:

E. B., æt. 19, single, was operated upon for disease of

the left ovary. After this had been removed, search was made for the ovary of the opposite side, the right. When it was found and examined, it was discovered at least twice, probably three times, its normal size; it was a peculiar shape, being considerably elongated and conical towards the point, where it seemed evidently on the eve of rupturing. In this situation it was of a deep blood-red color, resembling that of a dark-colored cherry; its surface was shining and glistening, and it was evident that only a very thin covering concealed the blood beneath, which seemed to be in quantity about as much as would occupy the space of a good-sized black currant. All round this there was a zone of deeply injected blood-vessels, and beyond this again a fainter zone, the entire organ being in a state of active hyperæmia. Such was the condition of this ovary; the other, as I stated just now, having been removed in the operation. Let us now see what were the consequences. The operation was performed at 10 o'clock on the 4th of November; the patient was admitted on the 31st of October; and it was noted that the last catamenial period occurred a fortnight previously. On the morning of the 6th of November, just 48 hours after the operation, menstruation began; on the next day it was very free and of dark color, and it ceased on the 9th, having lasted just three days. There can be no doubt, therefore, that the phenomena which I have described indicated the approaching rupture of a Graafian follicle; and it is fair to assume, indeed it amounts almost to a demonstration, that the menstrual discharge which occurred so soon after the operation

was the result of that rupture; and though it is true that this catamenial period occurred out of its regular course and was so far abnormal, yet in no other sense does it seem to have been so; on the contrary, in its freedom from pain and in the amount of discharge it may fairly be considered as a perfectly normal menstruation. We learn therefore this fact from the case now referred to, viz.: that the ovary, in its preparation for menstruation, may become quite double its natural size, be intensely vascular, the seat of a distinct hemorrhage, and even undergo a species of rupture; and all this may take place without giving rise to any suffering, indeed, without occasioning any symptoms whatever, and apparently as a normal and natural state of things. This, it seems to me, is a most important physiological lesson, one which is calculated to teach us much more than appears at first sight; for it is evident, I think, that if this be anything like the usual ovarian phenomena, then the condition designated by the term *ovaritis* must differ from it very widely; otherwise it would be impossible to explain the cause of the painful symptoms in the one case, with the entire absence of any such in the other.

If we examine the condition of the ovary a little more minutely during the process in question, we shall, I think, find some other tissue-changes in its normal physiological action which may help to explain, or at least to throw some light upon, some of the graver structural diseases which occur in these parts. Take, for instance, a Graafian follicle: this is composed of three, or I may say of two coats: first, the external,

fibrous, or vascular coat; it is through this coat that blood is supplied to the contained ovum; within this coat is a second membrane, the true follicle, composed of embryonic fibres of connective tissue, some round cells and granules, and a considerable quantity of oil-globules; within this again is the ovum, which is enclosed in what is termed the *membrana granulosa*, surrounded by more or less of fluid of a sero-sanguinolent character. It is to this fluid, which varies a good deal in extent, that is due the greater or less prominence of the follicle on the surface of the ovary previous to its dehiscence. In some cases it is so great that a sense of fluctuation is imparted to the ovary. If now a section were made through the ovary, or that portion of it which contains the follicle, at the period in question, we should observe a cavity of greater or less extent, containing, as I have said, a variable quantity of fluid, varying also in its composition, from simple serum to pure blood. Now it is evident that we have here the elements of possible mischief, wanting only some change in the direction of the developmental force, if I may so express it, in order to occasion very serious organic disease. In the ordinary natural and normal state of things, the Graafian follicle, with its contained ovum, in the course of its development works its way, as it were, from the more central to the peripheral portions of the ovary; and this it does in order that, by approaching the surface, and by the gradual thinning of the investing membrane, its final rupture and the escape of the ovum into the Fallopian tube may be accomplished. But we can readily understand

that this process of development, this gradual migration of the follicle to the periphery, may at any time be interfered with, and so the rupture which ought to take place is prevented; in consequence of which, either the contents of the follicle must be absorbed, or, if that cannot be, other changes may ensue which will give rise to very serious organic disease. The consideration of this question shows the importance of accurately appreciating the successive steps in the process of ovulation; it proves also that the study of physiology, and the investigation of the minute tissue-changes which take place in the performance of the function of a part, forms the best and most rational basis for a sound system of pathology.

Let us now see what is the effect produced upon the uterus by the process of ovulation. Stated broadly, we know that the result is the occurrence of menstruation; and it is important here to note, that while on the one hand the ovary is capable of affecting the uterus in such a manner that the performance of its function in menstruation may be seriously compromised, and disease result, so, on the other hand, it is equally clear that the ovary may in its turn be affected by the uterus and serious mischief ensue. We cannot wonder at this, seeing the intimate connection which exists between the two in regard to both their vascular and nervous systems. On the contrary, it would be a subject for wonder if it were otherwise; for it is only by reference to the fact of this intimacy that we can account at all for the phenomena witnessed during menstruation. We all know how completely the blood-vessels of the organs of

organic life are under the control of the sympathetic or ganglionic system of nerves; and, viewing the phenomena of menstruation as a whole, what do we see? On the one hand we have, at certain regular periods, a state of intense activity, both vascular and nervous, in an organ which is admitted to be the very central point in the generative system, without which there would be no such function whatever, and which by its physiological, I might also say its anatomical, position, is the starting-point of the generative act—the highest of all the generative organs in physiological dignity, and to which all the rest are subservient. If this be so—and no one, I think, will venture to dispute it—it is clearly altogether a misnomer to speak of the uterus and *its* appendages, by which is meant the ovaries and Fallopian tubes; for, in reality, the vagina is the only appendage, in the proper sense of the word, to the uterus, and both vagina, uterus, and Fallopian tubes are all appendages to the ovaries. Between these, then, and the others there is, as I have said before, a most complex, but, at the same time, most intimate connection—so intimate, in fact, that it is impossible to conceive of activity in the one without corresponding activity in the other. Accordingly, when the blood-vessels of the dominating organ (the ovary) are surcharged with blood, those of the subsidiary ones (the uterus and Fallopian tubes) become similarly affected; and this takes place, be it observed, not indirectly or by reflex action, as is very commonly asserted, but by the most direct relations. Possibly the ovaries may exercise a certain reflex action upon the organism at large; but upon some of the abdominal organs, and notably

upon the kidneys, the ovarian influence is direct, and not reflex: hence the excessive secretion of urine in cases of so-called hysteria, in which, whatever may be its exact pathological significance, all of us, I suppose, agree in believing that the ovaries have very much to answer for. I may mention here, parenthetically, that the occurrence of this excessive secretion of urine in connection with ovarian disturbance in hysteria is explained, I think, by reference to the nervous arrangements, where, as I have already pointed out, the ovaries are seen to be in direct relation with the kidneys through the spermatic plexus of nerves which springs directly from the renal and aortic plexuses. We have here an interesting illustration of the direct—not reflex—influence of the sympathetic nervous system, which I do not remember to have seen mentioned or explained in the manner now given.

The relation of the ovaries to the uterus, and their influence in the production of menstruation, is of the same direct character as that just described, and is certainly in no sense reflex, for the nervous and vascular connection of the ovaries with the fundus uteri is quite as direct, and of course is much shorter than that between the ovaries and the kidneys; the spermatic plexus, as we have seen, supplying the ovary and upper part of the uterus with nerves, just as the spermatic artery does with blood. Therefore it is fair to assume that the nervous influence is direct, and not reflex; indeed, there is not, so far as I know, a single anatomical fact which at all supports the view of a reflex action between the ovary and uterus. Moreover, the fact, as I

believe it to be, that the uterus is only an appendage to the ovary, is all in favor of the view that the dominating influence of the superior over the inferior is of a direct character.

I assume, of course, that by reflex action is meant the transmission of what we call nervous energy from one point along an incident nerve to some part of the central nervous system, and its subsequent re-transmission back again from that centre along an efferent nerve to some other more or less distant part. It is unnecessary to give illustrations of this reflex action, for they are of tolerably frequent occurrence and are generally well understood. Now if we apply the definition just given of reflex action to the case under consideration, we shall see, I think, that the term is misapplied in regard to the influence of the ovaries upon the uterus, for that the nervous action between them is of the most direct kind. This being so, we have next to inquire as to the character of that action. How is it exercised? There can be no doubt, I think, that here, as elsewhere, the action of these sympathetic nerves is direct upon the blood-vessels. It has been proved by Czermak, Bernard, Brown-Séquard, and others, that temporary excitation in an organ consequent upon increased functional activity will attract a larger amount of blood to the part than is usual under ordinary circumstances; and that this temporary afflux of blood will give rise to more or less paralysis and dilatation of blood-vessels in other organs in immediate relation with it, so that a flow of blood or an increased secretion of water may be the direct result. There are, in fact, two kinds of influence exer-

cised by nerves upon blood-vessels and affecting nutrition and secretion. In the one the blood-vessels contract, and there is a diminution of nutrition or of secretion; in the other "the blood-vessels dilate, in consequence of a greater attraction for arterial blood developed in the tissues." It is the latter kind of influence that I believe the ovaries exercise in menstruation. The performance of their function in ovulation attracts blood to them; and through the influence of the sympathetic, the blood-vessels and capillaries about the fundus uteri, which is supplied by the same set of nerves, and the vessels of which are in direct relation with those of the ovaries by free anastomoses, are dilated; secretion is consequently increased, and actual hæmorrhage may result.

I mention more particularly the fundus and upper part of the body of the uterus, because it deserves to be noted that the nervous connection between the ovary and uterus is distributed more especially over those parts, though it is true that branches from other plexuses commingle with these, and so bring the entire organ into one nervous communion. It seems to me, however, not unlikely that this arrangement of the nerves has special relation to another fact; namely, the fact, for so I believe it to be, that the menstrual secretion comes entirely from the fundus and body of the uterus, and that the cervix is not concerned in it, at least not in the way of supplying blood. In proof of this, I would quote from Dr. Arthur Farre's monograph on "The Uterus and its Appendages." He says: "In the uterus of one who has died whilst menstruating, a remarkable

difference is usually perceptible in the condition of the mucous membrane lining the cavity and body of the uterus respectively: that of the body is highly injected, of a deep-red color, the vessels distinct, and the capillaries numerous. That of the cervix exhibits a condition the opposite of this; it is pale, uninjected, and free from all appearances of distended vessels. If such a uterus be injected, the same conditions are observed in a more marked degree; all the capillaries on the mucous membrane of the body are filled, but comparatively few of the cervix, an abrupt line of demarcation occurring sometimes at the internal os uteri." And he adds, in further confirmation of this view, that if the uterus be gently pressed under water, little streamlets of blood are seen welling up from the pores or orifices of the utricular glands in the lining membrane of the cavity of the uterus, but none from the cervical cavity.

Now all this is in direct contradiction of the opinions expressed by some other observers. Dr. Henry Bennet, for instance, affirms that if the uterus be examined with the speculum during menstruation, and the cervix is brought into view, "its mucous surface is found greatly congested and of a deep-red hue." But Dr. Bennet does not tell us whether he took care to examine the same cervix in the non-menstrual condition, so that possibly the great congestion here spoken of may have been a morbid state unconnected with, except that it was made worse by, the menstrual function.

I have been at some pains to examine this question for myself, and in two instances where I was enabled

to examine the cervix with the speculum during the catamenial period, and again in the intervals, both cases being perfectly free from uterine disorder, there was hardly any change of color perceptible during the menstrual epoch. I have no doubt, therefore, that Dr. Farre's observations are strictly correct.

I have dwelt at some length upon this question and with some minuteness of detail, though it may seem at first sight hardly to belong to the subject I have in hand; but it appears very directly related to the physiology of the ovaries, and moreover it serves, I think, to illustrate the modus operandi by which we may in time hope to elucidate some of the at present obscure but undeniable effects of the ovaries upon other parts of the system, in health or disease. I think it extremely likely that the excessive secretion of urine which occurs in hysterical subjects is produced in a manner precisely similar to the secretion from the uterus in the case of menstruation—physiological activity in the one case producing a normal secretion from the organ functionally related to it; pathological activity in the other case leading to an abnormal secretion in an organ anatomically, but not physiologically, connected with it. In both cases the starting-point is the same, viz., the ovaries, and in both the result as regards the action upon the blood-vessels is identical, namely, dilatation, through the influence of the vaso-motor nerves. We know that such a result may follow from such a cause, and we know also that in glandular structures secretion is always increased as a consequence of dilatation of blood-vessels, while it is diminished by the opposite condition.

This, which I take to be a clearly-established fact in physiology, must eventually exercise an important influence upon the study of pathology; and it may be that many of our present difficulties in regard to ovarian diseases, especially those which arise from what are called functional in opposition to organic derangements, erroneous though I believe the expression to be, will be explained by reference to this law; and, what is more, our system of therapeutics may, it is to be hoped, receive new life from the same source, and be placed upon a footing at once more scientific and more exact.

To sum up, then: I have considered in this paper the chief points in the anatomy of the ovaries themselves, both in their general and microscopic characters, and in their relations to near and more distant organs. We have seen how and in what manner their functions are performed in health, and in what way it seems probable that they influence organs related to them physiologically, or connected with them anatomically. It has been demonstrated, I think, in a manner consistent with truth and reason, how that the blood-vessels are the chief agents in the performance of the ovarian functions; that they are the most affected by them; but, at the same time, it is through the nerves of those blood-vessels—the vaso-motor nerves—that the principal changes in the latter are effected. Therefore we may expect to find hereafter—for I fear our knowledge is not sufficiently advanced to make it clear at present—that the pathology of the ovaries will be best understood in proportion as we are able to recognize and appreciate changes affecting the great sympathetic nervous system, in its

general or local aspects. At the same time, we may hope that a mastery of these details will afford the best clue to a more rational and scientific system of therapeutics.

(To be continued.)

CONTINUATION OF THE DISCUSSION UPON SEPTICÆMIA* BEFORE THE NEW YORK OBSTETRICAL SOCIETY.

BY T. GAILLARD THOMAS, M.D.

AT the last meeting of this Society, Mr. President, we had the pleasure of listening to an interesting paper from Dr. Peaslee upon the subject of septicæmia. The chief objects of the essay were, according to my understanding of it, to confine within stricter and more exact limits the diagnosis of this condition, and to check what the author regards as a growing tendency to view as belonging to this class of affections, disorders which should not be thus classified. At that meeting I ventured to make a few desultory criticisms upon the author's views, which were replied to by himself and Dr. Jacobi. To these replies I was prevented from responding, by the announcement from the chair that the hour of adjournment had arrived, and I now avail myself of the opportunity accorded to me of doing so. As I propose to quote somewhat from authorities upon this matter, I prefer to commit my remarks to paper; and as I reply to an essay which I have not read, but only heard, I must beg its author to bear this fact in mind should I

* See "Transactions of the New York Obstetrical Society," pages 263–278 in this number.

misinterpret any of his views, and attribute to it any incorrect quotation of his statements.

Every attempt to improve the certainty of diagnosis must by every progressive physician be regarded as an effort at true advance, and as such I hail the essay which I am about to review. Nevertheless, I am constrained to confess that I feel that evil may result from the too rigorous and somewhat arbitrary lines which the author has drawn—lines which my own observation renders me unwilling to accept, and which I think are out of keeping with the opinions of those authorities whose dicta carry most weight in connection with the subject. Against a certain number of cases in which an erroneous diagnosis will be prevented by these rules, I fear and believe that there will be balanced a larger number in which septicæmia will develop and run its fatal course unrecognized and untreated. My impression is that the circumscribed limits of the author will exclude many cases in which this affection has developed *in parvo*, while it correctly represents those which appear *in magno*. He appears to me to ignore slight cases of septicæmia which run their courses and end favorably, and to confine his attention and remarks too much to exceedingly grave cases. In saying this I do not, however, wish to be understood as admitting that even in very grave cases his rules for diagnosis hold true, for I shall presently deny their validity, and, I think, convince the Society that I have good grounds for refusing to accept them.

Before going farther, let me sustain the position that cases of septicæmia, as true and unquestionable as those

of fatal character, are sometimes slight in degree and rapidly end in recovery. It is probably well known to my hearers that milk-fever is to-day regarded not as due to lacteal engorgement, but as being true septicæmia of no great degree of violence. This view is fully accepted by Grunewaldt and Winckel, while it is received with limitations by Schroeder and Schramm.

M. D'Espine, an interne of the hospitals of Paris, has recently published a report upon this subject in the *Archives Générales de Médécine*, which impresses me as so conscientious and accurate in detail that I shall quote it freely. He declares "milk-fever does not exist; the fever of the first seven days is always a slight septicæmia, due to an absorption of the lochial discharge by little wounds in the utero-vaginal canal."

I quote him here, not so much for his own opinion upon this matter, but because his statement probably reflects the views of the authorities under whose influence his conclusions were arrived at.

"Traumatic fever," says Billroth, "usually lasts a week; it is rarely longer, without some visible local complication." And further, he remarks, "Mild septic traumatic fever has the same relation to septicæmia that typhus febricula has to typhus."

This is one objection which I would make to the general character of the paper. There are two others which I will mention before proceeding to the analysis of its special points. One of these is the limitation of the essay to the consideration of septicæmia as it occurs in the lying-in room, or after operations upon the uterus

and ovaries. For this I do not think that any scientific basis can be found. Pathologists are agreed that an absorption of putrescent fluid constitutes the disease, and that its pathology is the same throughout the field of medicine and surgery. M. D'Espine sounds the key-note to the prevailing impression when he declares, in the essay already alluded to, that these accidents bear no special relation to the puerperal state, and should be classed with those which produce septicæmia in wounded persons and animals.

The other, and last general objection which I would present, has reference to the belief that looseness of diagnosis applies in any special degree to this affection. Now, Sir, I admit and deplore the fact that many cases of typhoid fever, of pericarditis, of pleuritis, of leucocythemia, and a host of other diseases, are daily detailed in our journals and societies under an erroneous impression, an error in diagnosis having been made.

I would make the same admission with regard to septicæmia, but I would admit no more. There is, as far as my observation goes, no greater laxity or uncertainty in the diagnosis of this affection than of others.

So much for the criticisms which I would make upon this essay as a whole. I now proceed to certain special points. According to my recollection of Dr. Peaslee's essay, it assumed that the following conditions should be regarded as pathognomonic of septicæmia, and that most of them should be required as crucial tests of its existence: 1st, a very high and rapidly-varying temperature, the thermometer recording a blood-heat of 104° or thereabout; 2d, a very rapid pulse; 3d, a marked degree

of mental hebetude, or a certain degree of mental excitement ending in this; 4th, a marked tendency to sweating; 5th, a peculiar sweetish odor of the breath; and 6th, a cadaveric hue of the complexion. At the same time that I admit that in very severe cases of septicæmia all these symptoms, with one exception, are apt to develop, I am not willing to admit their necessary existence in slighter cases, nor their universal presence even in very grave ones. In other words, I deny the propriety of refusing to believe in the existence of septicæmia because some or even most of these are absent.

Guided by my own experience, I would contest the views of the author upon the following points:—

1st. As to the time at which septicæmia may originate.

2d. As to the high rate of temperature as an essential to correct diagnosis.

3d. As to the propriety of laying any degree of stress upon the saccharine breath as a symptom. (I would remark that the author does not by any means make it an essential one.)

To maintain my first objection, I, at our last meeting related two cases, which, to make this paper complete, I must here repeat; the first from memory, the second from notes by Dr. Ward.

The first case was that of a woman about 30 years of age, who entered the Stranger's Hospital for treatment for a large fibrous polypus in the cavity of the uterus. It being found that removal was practicable, a sponge tent was introduced into the cervical canal by the house-

surgeon, and in twenty-four hours it was removed and another inserted. When this had been in position twelve hours, it was removed, for the following reasons: the patient had a violent chill, the pulse ran up to 150, the temperature to 106°, and she was put under the treatment which we adopt in developing peritonitis. From this time until the patient's death, the following were the symptoms: the temperature was very irregular and jumping, 101 to 103 in the morning, 104 to 106 in the evening; the pulse varied from 120 to 150; the complexion was sallow and dusky, and the intelligence dull and wandering. She lived in this way, as nearly as I can recollect, about a week, and then, just as we were becoming quieted in our anxiety about her, she suddenly died. A post-mortem examination revealed no peritonitis, and no abscesses in any viscera, only engorgement of lungs, liver, and spleen, as I remember.

In relating this case, I stated as a matter of interest that when the uterus and annexæ were presented to this Society, a member suggested that probably this sudden toxæmia had resulted from absorption of the sponge. Dr. Peaslee regarded this case as out of the category which his essay considered, looking upon it as equivalent to those cases in which poisonous elements had been injected into the veins of animals.

I did not then, nor do I now, accept the theory that absorption of septic material from a thoroughly washed and carbolized sponge created this fatal septicæmia. I gave no weight to the view, but mentioned it merely as a curious reminiscence. Intoxication of the blood probably resulted from a lymphangitis from

absorption of the putrescent contents of the uterus. This case I would maintain as one illustrating my position and not outside of the category.

The second case I attended in consultation with Dr. Ward, the Secretary of this Society, and will now read his notes of it:—

"On the 4th of March, 1873, I was requested by Dr. Thomas to take charge of a case of placenta prævia, then under the care of Dr. Mary Abbot.

"The patient was within two weeks of full term, and had had three hæmorrhages previous to that morning.

"Dr. Thomas saw her at 9 A.M. and introduced a catheter between the uterus and membranes, with a view to induce labor. At 4 P.M. regular labor-pains began, and at 5 P.M. I introduced the largest-sized Barnes' dilator in order to check hæmorrhage by making a pressure against the bleeding surface and to hasten dilatation.

"At 8 P.M., dilatation being nearly accomplished, the membranes were ruptured by Dr. Thomas, and thus pressure by the fœtal head substituted for that of the dilator. No further hæmorrhage resulted, and at 11 P.M. the patient was delivered of a vigorous boy.

"Thus far, as regards the duration and termination of labor, the patient was in as good condition as after ordinary labor, being neither exhausted from hæmorrhage nor protracted labor.

"1*st day.*—On the following day no unfavorable symptoms were apparent, though she was quite nervous.

"2*d day.*—During the following night, 27 hours after labor, she had a chill, and in the morning her pulse was

112 and temperature 102°. Evening temperature 99° pulse 86.

"3*d day.*—During the night following she had another chill, and her pulse in the morning was found to be 120, temperature 102°. Tongue dry and heavily coated; lochia normal. No abdominal tenderness, even on conjoined manipulation, and the whole pelvic roof would bear rough manipulation. It being believed that the whole train of symptoms was the result of septic absorption favored by the site of the abnormally located placenta, recourse was had to intra-uterine injections of carbolic acid, which was thoroughly done by me once in about eight hours during the following four days. The introduction of the catheter for injection and the necessary manipulations gave her no pain whatever.

"By direction of Dr. Thomas, quinine was freely exhibited and opium enough to quiet the nervous system; no pain whatever existed.

"Evening temperature 104°.

"4*th day.*—Morning temperature 101°; profuse sweats, sallow complexion, and slight mental aberration, which was at first taken for cinchonism—the lower lip much swollen and with a herpitic eruption upon it; tongue dry. Evening temperature 106°, pulse 160. Dr. Thomas being ill, at his request I asked Dr. Sands to see the patient, who, after examining her, believed that peritonitis was setting in; he did not think it could be septicæmia at so early a date.

"5*th day.*—Morning temperature 101°, pulse 140, general appearance of patient better; evening temperature 105°, pulse 140.

"*5th to 9th day.*—After this the pulse was never below 135, while the temperature would fluctuate from 101° to 106° and 107°; the mental aberration was progressively more marked, but of a mild character.

"*9th day.*—On the morning of the ninth day she was drowsy and little inclined to talk, though she gave rational answers in relation to herself and the members of her family. In the evening she was in a soporose condition, from which she lapsed into entire unconsciousness at 2 A.M., and died at 7 P.M. of the tenth day.

"A summary of this case exhibits the following points:—

"1st. Marked elevation of the pulse and temperature on the second day.

"2d. Extreme variation of temperature and rapidity of pulse throughout the entire course of the disease.

"3d. Mental hebetude.

"4th. Entire absence of symptoms of metritis, peritonitis, or other inflammatory trouble."

The diagnosis of this case Dr. Peaslee was unwilling to admit, while Dr. Jacobi expressed a deep regret that any case so palpably not one of septicæmia should go out as one from this Society. I admitted, when relating the case, that, no autopsy having been made, I could not, of course, be positive that the case was what I diagnosticated it to be; but as to the fact of its being plainly not a case of septicæmia, I deny it positively and without reservation. Furthermore, I must confess that I regarded Dr. Jacobi's criticisms upon it as being unsupported by the facts presented. I trust that to-night he will favor me with his reasons for questioning

the correctness of my diagnosis and that of Dr. Ward. This I do not desire merely in the spirit of disputation, but because if this case was not one of septicæmia, I am so much in the dark as to diagnosis in similar ones, that I really desire enlightenment.

Dr. Peaslee's shortest limit for the development of septicæmia is 48 hours. This requirement he may not have made absolute, but I understood him to lay great stress upon it, and to esteem it a *sine qua non* for certain diagnosis.

The two cases just related eventuated, one in 36, the other in 27 hours. Let us see what has been the experience of other observers.

M. D'Espine's essay is based upon the careful observation of 117 cases. Not to weary the Society, I give the headings only of a few:—

Observation XIII.—Sub-acute septicæmia; application of forceps; access of the disease during the first 24 hours; death in the night between the second and third days.

Observation XV. Acute septicæmia; access by fever the first day; death the sixth day.

Observation XVI.—Acute sporadic septicæmia from retention of the placenta; access of the fever the first day; death the eighth day.

He presents other cases, but these are sufficient for my purpose. The evidence of this observer must either be entirely discredited, or it must be admitted that within 24 hours septicæmia may declare itself.

Billroth, viewing traumatic fever and septicæmia as one and the same thing, the latter being only an ex-

aggeration of the pathological state constituting the essence of the former, says, on page 331 of the American edition of his work: "In other cases the fever begins the very day of the injury: we see this when blood has been enclosed between the flaps of the united wound and it has rapidly decomposed; frequently, also, when operations have been done in tissues infiltrated with the products of chronic inflammation."

How peculiarly apt is the operation of ovariotomy to furnish these two conditions—an imprisoned clot and the solution of continuity of tissues infiltrated with the products of chronic inflammation.

Dr. Peaslee regards a very high thermometric range as being absolutely essential to a certain diagnosis of septicæmia. I have already appealed to my own experience to prove that the disorder sometimes runs its course without the development of a very high temperature, and would still further do so by relating the following fatal case which I attended with Dr. J. L. Campbell, in March last:—

DR. THOMAS:

DEAR SIR—I regret that I have but a few minutes in which to reply to your request for my recollection of Mrs. C.'s case.

Mrs. C., aged about 32, aborted about the end of the second month, on Tuesday, the 18th of March last.

In the process hæmorrhage was very considerable, requiring the tampon, which was removed after about twenty hours. No hæmorrhage to speak of afterwards.

On Thursday, the 20th, patient had a slight rigor,

followed by moderate fever. Temperature not taken. No tenderness over any part of the abdomen; no tympanites; and I may remark that these last symptoms were *never present* during her illness.

On Friday, the 21st, symptoms were not alarming; but little fever. Insomnia gave me some uneasiness, for which one gr. opium was given with good effect.

On Saturday, 22d, in morning, very comfortable, with a considerable exacerbation of fever; in evening, a peculiar sallowness of skin manifested itself, which you remarked the next day (Sunday).

For four or five days subsequently, I may remark, this jaundiced hue became more pronounced; the urine also became deeply tinged with bile.

Two days before death the jaundice disappeared almost entirely, and the urine became normal in color.

As I did not keep notes of the case, I can only say from memory that the temperature, as taken twice a day, from Saturday, the 22d, never went higher than 103°, until the day of death, 106°. Each day there was a marked increase in the evening. The entire sickness was characterized by sleeplessness, but with little pain, except for about three days succeeding the rigor, in the right hip. The temperature, pulse, etc., were very encouraging on that day, until 10 P.M., when she complained of a bewildering headache, and said she should "go crazy."

Friday, 28th, semi-comatose, which deepened during the day to complete coma, terminating in death on the 29th. The secretion of urine was abundant until the coma appeared.

I regret that I have not time to review the above, and make the account at least intelligible.

Very truly yours,

J. L. CAMPBELL.

P. S.—I now recollect that on the 4th, typhomania manifested itself, which continued in a less degree subsequently.

Sweating occurred May 20, 1873; early on the day of death, herpes labialis existed.

259 W. 42d Street.

The authority of Billroth will, I presume, be admitted as being reliable upon this point, and fortunately he is perfectly clear and positive upon it. On page 337 of the American edition of his work upon Surgical Pathology, he says: "Cases also occur where the onset of the fever is scarcely marked by an elevation of temperature; and lastly, some cases run their course without fever, or with abnormally low temperature."

This point appears to me to be one of so great moment that I must urge its careful consideration by the Society. Surely Billroth could not make so positive and unreserved a statement without having fully satisfied himself of its truth. I accept it fully, not only from my respect for the authority, but because, as I stated at the last meeting of the Society, my own observation endorses it.

Lastly, as to the value of the saccharine breath: I look upon this as almost *nil.* Such has been my experience upon the point; and to illustrate it by an example, I, at the last meeting, alluded to a case of

septo-pyæmia which I had recently seen with Dr. Kammerer, where several joints were filled with pus, and yet no saccharine breath existed.

Dr. Peaslee preferred to regard this case as one of metastatic abscess and not of septicæmia. We know that such abscesses have two sources: first, they may arise from emboli which have been displaced by detachment from the thrombi in the veins near the seat of the primary disease; second, they may occur as secondary consequences of septic blood-poisoning. Billroth declares that "there are metastatic diffuse abscesses of the eye, cerebral membranes, subcutaneous tissue, joints, periosteum, liver, spleen, kidneys, pleura, pericardium, etc., which are independent of abscesses or emboli. The occurrence of these metastases cannot be easily explained."

D'Espine's 10th conclusion, based upon his 117 cases, is as follows: "Puerperal pyæmia is a complication of septicæmia, and is almost always accompanied by a purulent condition ('purulence') of the veins of the uterus. It is a comparatively rare complication, due probably to septic emboli.

"Metastatic visceral abscesses are consequences of it, while almost all the inflammations of cellular tissue and joints are due to lymphatic infection, and are not embolic in their nature."

Looking upon this case as one of this character, and accepting the diagnosis of Dr. Kammerer, who had watched it for some time before I saw it, I regarded it, and now regard it, as a case of septicæmia, complicated by metastatic abscesses, and presenting an instance of entire ab-

sence of sweetish breath, even in an advanced stage of the disease.

The appreciation of this symptom by D'Espine may be judged of when I say that nowhere in his essay do I find one solitary allusion to it. His résumé of symptoms, which is thorough and minute, includes chill, rapid pulse, altered facies, dyspnœa, diarrhœa, elevated temperature, mental derangement, suburral state of digestive tract, but no mention of this occurs anywhere, unless it has escaped my notice.

Billroth is equally silent about it, so far as my reading of his articles informs me.

This is, I admit, negative, and therefore not conclusive proof; but it is so strong as to satisfy me, and to induce me to give the Society a reprieve from the production of other evidence.

CIRCUMCISION FOR CONGENITAL PHIMOSIS WITH THE GALVANIC CAUTERY.

BY B. F. DAWSON, M.D., ETC.

SIMPLE and safe as the operations for circumcision are generally conceded to be, yet the fact that they may in some instances (rarely it is true) be followed by severe and even dangerous hemorrhage, is sufficient to justify the recognition of any new means or method of operating which wholly removes all possibility of danger from this or other causes.

Aside from the Jewish rite, surgeons are frequently called upon to perform this operation in cases of congenital contraction of the prepuce, both as an immediate remedial measure, as well as to insure the functions of the penis in adult life. As in general experience parents consent to it with great reluctance (as is also often the case in adults), at the thought of the knife and the loss of blood, it occurred to me some months ago that by cautery circumcision the above objections and dangers would be greatly overcome, to say nothing of the advantage of greater facility. I resolved at least to give the idea a trial, as there seemed no possible objections to it.

A case suitable for the operation came under my hands in March last (1873). The boy was three years of age, and was brought to me by his mother for relief

from the troubles due to an exceedingly contracted prepuce. On my requesting it, the mother consented to allow me to operate before the students at my Clinic for children in the Medical Department of the University of this city. The manner in which I proposed to operate was to noose the prepuce in a loop of fine platinum wire, connect the same to my battery, and then remove it by constriction, after which two or three snips of the mucous membrane with the scissors would enable me to retract and liberate the glans.

Accordingly on Saturday, March 15th, 1873, the boy being anæsthetized in the lecture-room, with bichloride of methylene, by my friend and assistant Dr. P. B. Porter, the prepuce was engaged in the platinum loop close to the glans, connection with the latter closed, and the prepuce removed; the mucous membrane was then snipped at four points, the prepuce retracted, and the glans readily exposed.

The boy in a few minutes recovered from the anæsthetic, and went home with his mother, suffering but slightly, a simple cold-water dressing having been applied.

Unfortunately the operation lasted longer than I expected or it should have done, owing to my battery not developing power sufficient to render the loop red hot.* Consequently the heat had more time to radiate into the tissues, giving a deeper and firmer eschar than

* The battery used was purchased by me in London last summer, being of the carbon and zinc pattern, requiring sulphuric and nitric acids. The use of the latter so affects the different points of connection as to call for their constant cleansing, to obtain full power. Neglect to do this was the cause of the non-development of the necessary power.

was desired or would have occurred had full power of the battery been obtained and removal been momentary. This unexpected firm eschar rendered the retracted prepuce less elastic, and slightly constricted the penis; after retraction, to avoid all danger, I snipped it slightly on each side.

For the first three or four days there was some œdema of the parts, but at the end of a week a narrow, soft, granulating line marked the site of the eschar. In two weeks the boy was shown before the class at the college, with the parts perfectly healed and all previously existing symptoms wholly relieved. The cicatrix resulting from the operation was exceedingly soft, and the penis showed no signs of so very recent an operation.

The result of this case satisfactorily demonstrated the success of this mode of operating, which so far as I can ascertain was the first instance of the kind, and certainly commends itself for trial in other cases.

The advantages which I claim for this method of operating are the following.

Entire avoidance of immediate or secondary hemorrhage.

Quickness of the operation over other methods, for when the wire is fully heated the removal of the prepuce should be but momentary.

Avoidance of the necessity of restraining the patient as to exercise, etc.

In the next case coming under my hand it is my intention to operate with the cautery knife instead of the loop as in the above instance.

A CASE OF MENINGOCELE.

COMMUNICATED BY JAMES S. BAILEY, M.D., ALBANY, N. Y.

THIS interesting malformation occurred in the practice of Dr. M. M. Lamb, of Lansingburgh, N. Y. The following is the history as given by himself.

Mrs. W., æt. 30, a healthy Irishwoman, twice pregnant, and delivered each time at full term.



The first child born was deformed, and lived but a

few days after birth; but the nature of the deformity could not correctly be ascertained.

The subject of this malformation was one of twins, a male, and weighed eight pounds. Labor in each case was normal, but in the case of twins was quite tedious. The meningocele was one-third larger than the child's head, emerging from the posterior fontanelle, and covered externally with hair like the scalp.

It was soft to the touch, except at its base, where it was somewhat harder and of a darker color. It was filled with subarachnoid fluid, enclosed in the membranes of the brain.

The other twin was a male, and weighed precisely the same—was a healthy child and free from malformation.

The child survived until the fourteenth day, and nursed well until within a few hours of its death.

A similar case is reported and illustrated in the Photographic Review of Philadelphia for 1870–71.

TRANSACTIONS OF THE NEW YORK OBSTETRICAL SOCIETY.

REPORTED BY CHARLES S. WARD, M.D., SECRETARY.

STATED MEETING OF MAY 6, 1873. DR. B. F. DAWSON, PRESIDENT, IN THE CHAIR.

THERE were present: Drs. Jacobi, Peaslee, Blake, Chamberlain, Jenkins, L. A. Rodenstein, Thomas, Byrne, Dawson, Dewees, Ch. F. Rodenstein, Janvrin, Ward.

The minutes of the preceding meeting were read and accepted.

DR. THOMAS, on behalf of the committee appointed at the meeting subsequent to the death of Dr. James L. Brown, presented the following resolutions, which were accepted:—

Whereas, it has pleased a Divine Providence to take from our midst our beloved President, Dr. James L. Brown; therefore, be it

Resolved, That we deeply mourn our loss in being thus suddenly deprived of an able and devoted President, whose wise counsels and judicious labors were always of the highest value to this Society.

Resolved, That by the death of Dr. Brown we have lost a friend and associate whose warmest interest and hearty co-operation have been with us since the very foundation of our Society, and whose unceasing and zealous exertions have largely contributed to its present position and success.

Resolved, That in the removal in the midst of an active career of one so qualified to adorn its ranks, the medical profession of this city has sustained a severe loss.

Resolved, That we tender our heartfelt sympathy to the bereaved family of Dr. Brown.

Resolved, That a copy of these resolutions be sent to the family of Dr. Brown, and that they be published in the medical journals of this city.

(Signed), T. G. THOMAS, M.D.
E. R. PEASLEE, M. D.

The President, on motion of Dr. Jacobi, appointed Drs. Sims, Emmet, and Thomas, a committee to draft suitable resolutions on the death of Dr. J. C. Nott.

The next business in order being the reading of a paper, DR. PEASLEE read a paper on

SEPTICÆMIA IN ITS RELATIONS TO GYNÆCOLOGY,

its symptoms, diagnosis, and treatment.

Disclaiming any attempt at originality, he wished especially to bring before the Society the various points which distinguish septicæmia from several other conditions which are frequently mistaken for it, and thus to check the too common tendency at the present time to invoke septicæmia in cases in which its recognized symptoms do not exist.

Defining septicæmia as being the condition, or rather the group of conditions, which are produced by the admission of a septic poison into the blood, and thus distinguishing it from uræmia, cholæmia, all the fevers and metastatic abscesses produced by emboli or artificial injections as practised by Sedillot, H. Lee, and others, and attributing the effects in septicæmia to a principle called septine by Dr. Richardson, he showed that this substance might enter the blood in a fluid or a gaseous form; and hence septicæmia may be contagious or may be developed in the patient's body.

Dr. Peaslee objected to the term pyæmia as not expressing the fact of septine in the blood unless the pus had first been decomposed, and was therefore no longer pus; still, under this term two entirely distinct conditions had hitherto been, and still very generally are, included, viz.: true septicæmia and the condition more especially characterized by the formation of multiple abscesses, most frequently in the liver and lungs, and which condition he termed metastatic abscess. The cause of the abscesses being, not the admission of septine into the blood, but an obstruction of the circulation in the part affected by the abscess by emboli or other substances.

He also alluded to the presence of the bacteria in septicæmia, but without ascribing to it a causative agency; no natural element of the blood can produce septicæmia without being previously decomposed. He stated that septicæmia is a rapidly fatal condition, unless the cause is promptly removed or kept diminished to a very small amount, death occurring in from eight to nine days after its invasion, while many recoveries from metastatic abscesses occur, and sometimes after a continuance for several weeks. Septicæmia is usually developed in from two to nine days after an operation. Dr. P. had two cases of its development twelve days after ovariotomy.

He then proceeded to specify the most characteristic symptoms of septicæmia, dwelling especially upon its manner of invasion, the very high temperature of the patient (always over 104°), the very weak and rapid pulse, great prostration, the

sudden alternations of the temperature, the jaundiced skin, the mawkish breath, the cerebral dulness, and the delusive subsidence of some of these symptoms for several hours, now and then, to return again.

Occurring after a great variety of accidents and surgical operations, septicæmia most interests the gynæcologist when occurring in connection with parturition, either premature or at the end of term, with ovariotomy and operations for the removal of uterine fibroids, and in cases of imperforate hymen. He must leave the particulars, however, to be considered in the discussion to which his remarks might, perhaps, give rise. He then spoke of the diagnosis of septicæmia as distinguished from the conditions most frequently mistaken by the gynæcologist for septicæmia, viz.: peritonitis, metastatic abscess, typhus and enteric fever, and cerebral disease.

Finally, Dr. P. regarded the removal of the source of the septine as the all-important and indispensable point in the treatment of septicæmia, and spoke also of perfect ventilation, nourishing diet, stimulants, and sulphate of quinine, as necessary for the sustention of the patient while the septine is being eliminated from the blood.

Dr. Thomas remarked, that the general features of Dr. Peaslee's paper are those which I think will, in the main, agree with my own observations. We all are willing to accept his definition of the term septicæmia.

With regard to one or two points, I do not feel so certain as does Dr. Peaslee. The first, and more particularly, is with regard to the length of time which elapses before septicæmia develops itself. Until within a year or so, and more particularly within the past few months, I was of the opinion that three or four days at least must elapse before septicæmia would show itself after the introduction of the poisonous element into the system. But I have seen a number of cases which have led me to doubt the truth of this opinion. I will mention only one or two cases which make me feel this doubt, and to believe that very rapid decomposition and absorption may take place. At the last meeting of this Society, as may be recollected, I exhibited a uterus with its annexæ, in illustration of some pathological conditions in connection with uterine fibroids. My recollection of the history of that case is this: the woman entered the Strangers' Hospital, and was very anxious to have the uterine fibroid removed from the cavity of the uterus. It was decided to dilate the cavity of the cervix, and, if it was then found practicable, to remove the tumor. The primary steps of the operation were as follows: a sponge-tent

was introduced into the cervix by myself, and left in that position twenty-four hours, and then it was removed, and another took its place. This remained in place twelve hours.

At the end of that time the patient had a sudden and violent chill. Her temperature ran up to 106°, and subsequently was above that point. Pulse 160, and the patient wore that peculiar facies so commonly seen in connection with these cases. There was no sweet odor to the breath, and this leads me to remark that I have found this symptom an exceedingly unsatisfactory one. I think, indeed admit, that it sometimes is present, and very markedly present; but I have found it an exceedingly unreliable symptom. This case was regarded as a case of septicæmia, and it was supposed that some septic element had been absorbed from the uterus, and it was also suggested that the septic material came from the sponge itself. This patient got so much better—the temperature at the same time taking that erratic course which has been referred to—that I regarded her as out of danger. Her pulse had fallen below 100, and her temperature was nearly normal. Suddenly her temperature and pulse began to rise, and the patient died within a few days. Several of the gentlemen who saw her were of the opinion that the patient died of peritonitis, but there was not a trace of peritonitis to be found when post-mortem was made. In this case not more than 36 hours elapsed from the time of the first appearance of the symptoms, to the time of the full development of the disease. Another case I saw with Dr. Ward, in which the lapse of time was less than 48 hours before the disease was fully developed. That patient presented all the rational symptoms and physical signs of placenta prævia. It was decided to bring on labor at once. Accordingly a gum-elastic catheter was introduced into the uterus, labor induced, and the woman was delivered with but little hemorrhage. She did very well for 27 hours after her delivery. At the end of that time she was seized with a violent chill; her temperature ran up to 105° or 106°, her pulse became very rapid; there were no symptoms of peritonitis, no marked fetid discharge; the cervix was lifted up with the finger and firm pressure made in that region, but no tenderness could be discovered at any point. That woman sank rapidly, and died in nine days from the first appearance of these symptoms. No post-mortem was made. In that case, then, it may be said that no positive evidence was obtained that peritonitis was not present, and this may reasonably be said; but the evidence we now have was decidedly in favor of the existence of septicæmia. The fluctuations in temperature, which Dr. Peaslee has mentioned, were markedly

present. In the morning the temperature would be found at 102°; in the evening of the same day 106°. The following morning it would be 98°, and toward evening of that same day 106° and 107°. The sudden appearance of the disease, from a look of perfect safety, with a temperature at 101° and a pulse under 135, and so comfortable that I deemed it inexpedient to continue my consultations longer; but in the evening of the same day she was soporose, and before the morning comatose, pulse and temperature high, and died within the next 24 hours. This, it is true, would not prove it to be septicæmia, but the conviction was strong in my mind that it was a case of septicæmia. In the light of these cases, and several more of similar character, it seems to me that we shall yet materially change our views with regard to the time in which septic material will undergo decomposition and absorption. I think we shall find that decomposition and absorption may take place within a very short time.

With regard to symptomatology: the thermometric evidence is the most valuable we have. In every respect it is the most serviceable. The variations in temperature which are presented to us by thermometrical observations in this class of cases are certainly wonderful. A patient may look perfectly well in the morning, and in the evening have a temperature of 107° or 108°, which is a fact of itself sufficient to indicate to us that she is suffering from some very great disease. There are, however, certain thermometrical variations and exacerbations which are seen in connection with many diseased conditions, but these alone would not make them out to be septicæmia. But a classical case of septicæmia presents just the symptoms to which Dr. Peaslee has already made reference. Still I see many cases in which we are in great doubt with regard to diagnosis, particularly in those cases which come on slowly. I have very commonly found the sweetish odor to the breath, to which special reference was made, absent.

About six weeks ago I saw a patient with Dr. Kammerer. She was a German lady, and about four or five days previous to my visit she had a chill, and soon developed all the symptoms of septicæmia. A very noticeable feature in that case was the fact that a number of joints were filled with pus. Pus filled the elbow-joint, was present in one of the digital joints, and a collection of pus produced exophthalmos of one eye. The patient presented all the appearances of a person who was suffering from septicæmia of a very severe character. In that patient there was entire freedom from the sweet odor of the breath. I do not wish, however, to throw discredit upon it as a

symptom, but simply wish to state my own experience with regard to its existence. With regard to prognosis, I think Dr. Peaslee has spoken properly. If the focus of poison can be destroyed, prognosis is good. Virchow has said that one poisoning is not very likely to destroy the patient, and if the focus can be removed, the patient has a good chance for recovery. I feel that my experience fully accords with that opinion. Still, when I have done everything to remove the focus, I have by no means cured all my cases. For example, in the case I saw with Dr. Ward; Dr. Sims also saw the patient, but was of the opinion that it was a case of peritonitis. In that case Dr. Ward injected the cavity of the uterus with a solution of carbolic acid every eight or twelve hours, and washed the entire cavity most carefully and thoroughly. But this treatment exerted no influence whatever upon the disease, which ran on in spite of all that was done to remove the focus of poisoning, acting upon the supposition that it was a case of septicæmia.

In connection with cases of ovariotomy my observations of results of efforts at removing the focus of poisoning have been very different. The plan of injecting the peritoneal cavity for the removal of decomposing material has been so beneficial in its effects, that I have found myself many times placed in a position where it was almost impossible to believe the results, so marked have been the fall in temperature and improvement in the condition of the pulse. I believe very much in the opinion that the poisonous influence is kept up pretty constantly, and whenever that is cut off, an amelioration of symptoms takes place very rapidly.

With regard to treatment, I have nothing to add to what has been suggested in the paper of Dr. Peaslee.

Dr. Peaslee inquired whether, in the second case which Dr. Thomas related, the symptom of somnolency was present.

Dr. Ward answered that there were some quite well-marked manifestations of that kind.

Dr. Peaslee: When I was speaking of four days elapsing before the development of septicæmia, I referred to cases in which it presented itself in the natural order of things. There can be no doubt, if a sponge-tent has poison in it, that the poison might enter the circulation within an hour and produce symptoms within an hour. A sponge-tent will also hold the fluids, and then they undergo decomposition very rapidly. But I was not speaking of that class of cases when referring to the length of time which ordinarily elapsed before the development of septicæmia. The only difference between Dr. Thomas and myself is this: When I do not see symptoms that undoubtedly

belong to septicæmia, I assume that it is not septicæmia, and wait until I see symptoms sufficient to convince me beyond a doubt.

With regard to septicæmia after ovariotomy, I have never yet seen a case where the sweet odor in the breath was not present; but I do not say that a septicæmia could not occur without it. Its absence alone would not prove to me that it was not a case of septicæmia. But I should be unwilling to say, with regard to any case, that it was a case of septicæmia, until I was obliged to from the positive evidence furnished by unmistakable symptoms. I may here make mention of a case where septicæmia was present in a patient upon whom no operation had been performed. That patient was the subject of a uterine fibroid, and the tumor had been injured by a blow received upon the outside of the body. When post-mortem examination was made, it was found that the tumor was in a gangrenous condition, and probably the air did not come in contact with it at all; yet all the symptoms were those of septicæmia, and thoroughly developed. It was an exceptional case, and does not, therefore, come within the pale of those cases which I had in mind while making my remarks at the commencement of the meeting. The third case of Dr. Thomas would be, to my mind, a case of metastatic abscess.

Dr. Jacobi remarked, with regard to the three cases of Dr. Thomas, that he thought one of them belonged to that class of cases claimed as pyæmia, and that the data in the other two were not sufficient to allow us to make the diagnosis of septicæmia with that positiveness that would be necessary to diagnosticate these cases.

There is one point with regard to making a diagnosis of septicæmia nowadays. In every case it requires more than an average pathologist and diagnostician, for the following reason: We have a large number of nervous symptoms that look so much like one thing and so much like another, that they may be the result of very many diseases. Therefore it is that we hear so frequently of cases terminating as typhoid—terminating by the development of nervous symptoms, which simply means, that circulation was interfered with by this disease, or local cerebral disease, or poison in the blood, and so on. Thus it is frequently thought that the patient has typhoid symptoms, or septicæmic symptoms, when we have neither typhoid fever nor septicæmic condition of the blood. Therefore, a trustworthy pathologist and diagnostician is absolutely necessary, to say whether we have to deal with an embolic pneumonia, or catarrhal pneumonia; also, whether we have the presence of a

diseased blood, in order to attribute the symptoms we have to a proper cause. One mistake we make; when we look for a pathological lesion produced by disease, we are very apt to look for it in the spleen, in the gastric organs, or in some other important viscera.

We hardly ever look, or are less likely to look, to that organ which is so frequently the seat of the most dangerous diseases, and that is the blood. There are cases, for instance, of leucocythæmia in which there is no swelling of the spleen or lymphatic glands, in which the diagnosis cannot be made for a long time, except by the use of the microscope in making an examination of the blood. There are, however, many diseases in which diagnosis cannot be so easily made as in that referred to. Within the last few years physicians have been a little more careful about diagnosticating septicæmia. Evidently Dr. Peaslee means to throw out every case of metastatic abscess from septicæmia. For a number of years, especially in England, more in Germany, but more recently, especially within the last two years, in France, the blood has been studied particularly for the presence of vegetable parasites. It is said that vegetable parasites are found abundantly in the blood of septicæmic cases, and that the presence of bacteria in the blood must be taken as the particular cause of the symptoms of septicæmia. If this is true concerning this disease, it would point to the necessity of making a microscopical examination of the blood in every case of suspected septicæmia.

There are, also, as we all know, chemical poisons which affect the blood.

It may be that we yet shall learn to distinguish the symptoms of the different chemical poisons as we now distinguish between the symptoms of uræmia and septicæmia. I fully believe that, in the future, we shall be able to diagnosticate ammonæmia, uræmia, and other æmias, and perhaps bacteræmia—if the bacteriæ are the only real symptoms of septicæmia—by chemical and microscopical examination of the blood; how bacteriæ come in the blood, how they destroy tissue, how they get into the blood-vessels, how they swim or are carried along in the current, how they may even give rise to embolism, how in this manner pyæmia or septicæmia and metastatic abscess may be complicated, and may combine. All this has been shown, at least in a number of instances, and I feel sure in my own mind, that not far in the future we shall be able to make but one diagnosis in these cases. I wish to make a single remark more. We must not look for any large number of alterations in the viscera of a patient who has died of septicæmia. The spleen

may be slightly degenerated, perhaps a little enlarged. We may find here and there infarctions in the different organs, but, as a rule, we are not apt to find much change in the viscera in a case of septicæmia. I believe, therefore, as I have already said, that it requires a very sound pathologist and diagnostician to be able to arrive at a correct diagnosis by exclusion. If we are not able to make a diagnosis by an examination of the viscera of the body, we must fall back upon the blood, and arrive at our diagnosis in the same manner as we now do in our cases of leucocythæmia, by a microscopical examination.

STATED MEETING, MAY 20, 1873. DR. B. F. DAWSON, PRESIDENT, IN THE CHAIR.

There were present, Drs. Skene, Chamberlain, Sims, Thomas, Janvrin, Barker, Perry, Noeggerath, Dawson, Byrne, Ch. F. Rodenstein, Munde, L. A. Rodenstein, Otis, Peaslee, Reynolds, and Ward.

The minutes of the preceding meeting were read and accepted.

DR. T. G. THOMAS, on behalf of the Committee appointed to draft a suitable form of resolutions, presented the following, which were adopted:—

Whereas, It has pleased Almighty God of His infinite wisdom to remove from our midst our late fellow and former President, Dr. Josiah C. Nott, therefore be it

Resolved, That while we bow in submission to His will, we feel that in the death of our late beloved associate we have sustained a loss rendered irreparable by his rare professional and scholastic acquirements, his genial and fascinating social qualities, and his simple, honest nature.

Resolved, That by his valuable contributions to the profession which he loved and honored, Dr. Nott had rendered himself a member of whom we may all feel proud, and whose loss the science of medicine may well deplore.

Resolved, That in his relations with and conduct towards his professional brethren, illustrated by a long and active career, he has left us an example worthy of imitation.

Resolved, That we tender to his bereaved family our most sincere and heartfelt sympathy in their great sorrow.

Resolved, That a copy of these resolutions be sent to his family, and be published in the medical journals of this country.

J. MARION SIMS, M.D.
T. GAILLARD THOMAS, M.D.
THOS. ADDIS EMMET, M.D.

CASE OF METRO-PERITONITIS.

DR. JANVRIN presented the uterus of a primipara who died ten days after confinement. The labor was normal, and the patient did well until five days after delivery, when she was taken with a severe chill. Her physician requested Dr. J. to

see her, who found she had peritonitis. Intra-uterine injections of carbolic acid and water were used, and opium freely exhibited. Pulse at this time was 116, and the evening temperature 103½°; there was some tympanitis. In addition to the opium, 4 grains of quinine were given every three hours. Her condition about the same during the two following days; the next day, however (Thursday), she grew much worse, the temperature being 104°, pulse 126, and respiration 32. Intellection remained good until ten minutes before death, which occurred ten days after confinement. Dr. Janvrin made particular mention of the fact that there was scarcely any tenderness on pressure.

An autopsy revealed much lymph and pus over all the viscera, as well as pus in the uterine sinuses. The point which interested Dr. Janvrin was, whether there was any septicæmia in this case. Dr. Peaslee remarked that he considered this a case of metro-peritonitis, though there was less than the usual tenderness.

OVARIAN TUMOR WITHOUT PEDICLE.

Dr. Peaslee exhibited an ovarian cyst which he had recently removed. The patient first discovered the tumor in the right iliac region, at the age of 20; she is now 45 years old. The tumor remained stationary, as regards size, during a period of eleven years. Since the discovery of the tumor she has borne five children. At last the tumor took on a rapid growth. On removing the tumor from the abdominal cavity, it was found that there was no pedicle; but the tumor was attached to the omentum, from which several arteries passed to the tumor and radiated over the cyst. The cyst contained a small dermoid cyst, with sebaceous matter and bone. Dr. Peaslee gave the following explanation of the absence of the pedicle. The cyst appeared to have developed slowly during a period of two years, when it is probable that the tumor so rotated as to nearly cut off the circulation in the arteries of the pedicle, so that, poorly nourished, the cyst remained stationary for a long time, until the vascular supply, which became established through an adhesion to the omentum, became so great as to allow of rapid growth. Mr. Spencer Wells mentions five cases in which he found no pedicle, and Mr. Baker Brown records one case.

The regular order of business being suspended, Dr. Thomas read a paper * in reply to the paper of Dr. Peaslee, of the previous meeting, in which, after stating his understanding of Dr. P.'s paper to be an attempt "to confine within stricter and

* *See original department in this number, p. 247.*

more exact limits the diagnosis of that condition (septicæmia), and to check what the author regards as a growing tendency to view as belonging to this class of affections, disorders which should not thus be classed," he said: "Every attempt to improve the certainty of diagnosis must, by every progressive physician, be regarded as an effort at true advance, and as such he hailed the essay which he was about to review;" but he thought that "the circumscribed limits of the author would exclude many cases in which the affection has developed *in parvo*, while it correctly represents those which appear *in magno*. Dr. Thomas thought Dr. Peaslee ignored slight cases of septicæmia which run their courses and end favorably, and to confine his attention and remarks too much to exceedingly grave cases. Dr. Thomas did not wish to be understood as admitting that, even in very grave cases, Dr. P.'s rules for diagnosis held true. Dr. Thomas also objected to the limitation of Dr. P.'s essay ("to the consideration of septicæmia as it occurs in the lying-in room, or after operations upon the uterus and ovaries"), on the ground that no scientific basis could be found for such a limitation.

Dr. Thomas also objected to Dr. P.'s "reference to the belief that looseness of diagnosis applies in any special degree to this affection," adding that in his experience he had seen no greater laxity or uncertainty in the diagnosis of this affection than of others.

Finally, Dr. Thomas contested the views of Dr. P. on the following points:—

1st. As to the time at which septicæmia may originate.

2d. As to the high rate of temperature as an essential to correct diagnosis.

3d. As to the propriety of laying any degree of stress upon the saccharine breath as a symptom, though the author does not make it an essential one.

Dr. Thomas then presented details of three cases in his own practice and quoted largely from D'Espine's essay, and from Billroth, as sustaining his objections to Dr. Peaslee's position on septicæmia.

At the conclusion of the reading of Dr. Thomas's paper, Dr. Noeggerath was invited to make some remarks upon the relations of bacteria to septicæmia.

Dr. Noeggerath replied, that the subject of bacteria in this connection was so complicated and extensive that he would not feel that he could do justice to it in the short space allotted—there are many disputed points and too much interesting material to pass over; he therefore promised at an early day to give a complete *résumé* of the subject in the form of a paper.

Upon the paper of the evening and the paper of the previous evening by Dr. Peaslee, Dr. Noeggerath remarked, that as he did not hear the paper of Dr. Peaslee, he did not feel thoroughly acquainted with the position taken. But he fully concurred in the positions taken by Dr. Thomas in his paper.

He could only imagine that the facts, the consequences, and the points in diagnosis which Dr. Peaslee has brought forward in his paper, relate not to spontaneous septicæmia, but to an endemic septicæmia as it occurs occasionally in our large hospitals. He could very well imagine that certain epidemics of septicæmia do take place under favorable circumstances in hospitals, where all the symptoms, all the peculiarities of the disease, as they have been described, have occurred. There are seasons, for instance, in which we have puerperal fever with peritonitis, and there are seasons in which we have puerperal fever with pleuritis, and at other times we see cases purely of septicæmia. The description of Dr. Peaslee does not and cannot relate to all cases of septicæmia. It has been proved by experiments upon animals that the amount of symptoms in septicæmia corresponds to the amount of septic matter injected into the blood of the animal. If a heavy animal, for instance a dog, weighing 20 or 30 pounds, has injected into his system a small quantity of septic material, the symptoms developed may be almost nothing and the temperature hardly raised, and the animal soon recovers. If, however, a smaller animal is taken, and the same amount of septic material injected into his system, then more striking symptoms are developed and true septicæmia results. There is no reason why the same results may not occur in the human subject. If, therefore, we have two individuals, not delivered at the same time, but one is taken with septicæmia immediately after delivery, and the other not until eight or nine days have elapsed, it stands to reason that the former should have more fever and a higher temperature than the latter, for the reason that the surfaces from which the septic material is absorbed are larger and more abundant, giving greater facility for the introduction of septic matter and, as a result, more striking and definite symptoms. Dr. Noeggerath has seen cases of septicæmia beginning during labor and followed them up, gradually developing into the most intense forms of septicæmia. Dr. Carl Braun describes the same occurrence, which he substantiates by saying that he has examined the secretions during labor and found that in those cases there was already existing a large amount of bacteria in the secretions from the uterus. Now *that* septicæmia beginning during labor becomes gradually increased in intensity, so that at the end of three or four days an advanced stage of the disease is attained.

With regard to temperature, Dr. Noeggerath's observations confirm the position taken by Dr. Thomas, for there are many cases in which the temperature is scarcely raised. A case under observation at present will illustrate this point. The patient was delivered about three weeks ago of a four months' foetus; one week afterwards Dr. N. was called, on account of hæmorrhage, the result of retention of the placenta. This could not be removed at the time, as the cervix was contracted. From the appearance of the patient, septic absorption had already begun: hæmorrhage again occurred, and the placenta was removed. Septicæmia now exists, though the temperature is but 37°.5 cent. and the pulse 96°; but associated with these there is an offensive discharge from the vagina and sweating, while the whole character of the disease is unmistakably that of septicæmia.

With regard to the symptoms of septicæmia in general, Dr. N. does not think that there is any one symptom which is characteristic of the disease. The most reliable one is the occasional sudden perspiration. The amount of fever, the height of temperature, the depression of the system, the mental disturbance, may all be seen in connection with inflammatory disease of the abdominal organs, the same as in connection with septicæmia. Our only means of making a diagnosis in such cases is, if the patient has high fever and occasional sweating, and we can exclude lesions of the pelvic or abdominal viscera, we are forced to believe that the patient is suffering from septicæmia. With regard to the sweetish breath, Dr. Noeggerath remarked that in most of his cases this symptom was wanting, though he admitted that it might be due to a lack of education of the nasal passages.

Dr. Peaslee commenced his remarks upon Dr. Thomas' paper by expressing a decided objection, should Dr. T. publish his paper, to certain incorrect statements and interpretations of his (Dr. P.'s) own paper, which Dr. Thomas's contained. He had not so far stultified himself as to state that septicæmia does not exist except after the operation of ovariotomy, the operation for the removal of uterine fibroids, and in case of imperforate hymen and after parturition. He stated expressly that it occurs after a great variety of surgical operations, but that he should confine himself to its development in the conditions just stated, since he supposed this view of the subject would be the most interesting to the members of this Society. He therefore need not reply to the remarks of Billroth, quoted by Dr. Thomas, since they do not come within the scope of his own paper.

Dr. Thomas said that he did not understand Dr. Peaslee as making any such restrictions, and that nowhere in his paper would such a statement be found. He merely stated that no

separation between surgical and puerperal cases, or those resulting from the operations of the gynæcologist, could be sustained upon scientific grounds, since the pathology of septicæmia was the same in all the fields.

Dr. Peaslee: I accept that criticism at its value. I judged it better to confine my paper on so extensive a topic to the relations of septicæmia to gynæcology alone, since this Society consists mainly of gynæcologists and obstetricians, and not of surgeons. But the subject and the scope of a paper must, I suppose, always be decided by the writer.

Dr. Peaslee remarked that he thought the style of criticism adopted by Dr. Thomas would fritter away to nothing any paper intended to elucidate the symptoms and diagnosis of any pathological condition. By way of illustration, he referred to the attempt made a few years since by a member of this Society to give the symptoms and differential diagnosis of pelvic cellulitis, as distinguished from pelvic peritonitis. To this end that writer distinctly stated all the symptoms of a well-marked case of the former condition, and arranged them in the form of a synopsis, that the diagnosis might thus be surely made out. Some high authorities still maintain that Dr. Thomas (for I of course refer to him) did not succeed in his attempt; for myself, I think he made a very creditable contribution to gynæcological science. But everybody knows that not a single one of the symptoms he has given can alone prove the existence of either pelvic cellulitis or pelvic peritonitis; and if we reject one after another for this reason, we come to the conclusion that both have no symptoms at all of any value, and therefore that neither can be detected if it do exist, or be shown not to exist if it do not. Dr. Peaslee had also attempted to give the symptoms and diagnosis of septicæmia, as distinguishing it from certain other conditions with which it had very often been confounded, and Dr. Thomas had rather approved of the attempt. He has also assumed, as his standard of septicæmia, a well-marked case, and not one (if such there be), which has no marked symptoms; remarking at the same time that no one symptom is pathognomonic of this condition, though the jaundiced skin, the sudden rise and great debility of the pulse, the very high but still greatly varying temperature, the mawkish breath and the cerebral heaviness being the most marked, and together demonstrating this condition. Dr. Peaslee added that the blows directed by Dr. Thomas against his paper did not, however, in fact, touch himself (Dr. P.) personally; since, as he had said at the commencement of his paper, he disclaimed all attempt at originality, and proposed the views of septicæmia which he holds as now demon-

strated on collating the most advanced modern authorities in pathology. He can give such authority for every point he has taken, so far as the symptoms of septicæmia are concerned; the attempt only to discriminate as clearly as the present state of science permits between true septicæmia on the one hand and metastatic abscess and the other conditions for which it is so frequently mistaken, being peculiar to himself. In reply to Dr. Thomas's quotation of D'Espine, as not mentioning the sweetish odor of the breath in his essay, Dr. P. said he was aware that several writers on *pyæmia* did not, and as D'Espine had probably not had a very extensive experience as interne of one of the Parisian hospitals, he also had failed to distinguish between septicæmia and metastatic abscess, many of his cases being the latter, and not cases of true septicæmia. Dr. Peaslee had thus far always met with it in true septicæmia.

In respect to the time at the end of which septicæmica appears, Dr. P. said the question is not how long does it appear after the septine enters the blood, for of course it occurs as soon as the blood is generally poisoned, but how long after parturition or the operations specified is the earliest time when the poison is developed and absorbed. And this question he answered as before, in from forty-eight hours to four, seven, or even twelve days. This is the fact, however we may theorize about it; the exceptions, if any, are so very rare as not to be alluded to by the most recent authorities on the subject. Dr. P. had not himself known septicæmia to occur in less than four days after ovariotomy, and had had two cases in which it occurred in twelve days after it.

Dr. Thomas said that he would deeply regret to misstate any of Dr. Peaslee's views. He had made every effort to get his paper, but had failed, and had then availed himself of the Secretary's notes, which were in accordance with his (Dr. T.'s) statements. He had understood Dr. Peaslee as distinctly assuming that no case of septicæmia ever manifested itself before the lapse of forty-eight hours after the development of the causative circumstance, and that a high temperature was an essential for correct and positive diagnosis. His remarks at the last meeting, and at this, had been made solely to refute these positions; and if he had misunderstood Dr. Peaslee his labor had been gratuitous. The Secretary had understood Dr. Peaslee exactly as he (Dr. T.) had. He then asked Dr. Peaslee if he did not state that the temperature in septicæmia is at least 106°.

Dr. Peaslee: I did not. I stated that it may rise to 106° or 107°, or more, and that in a clear case it is never less at

some point in the progress of the case than 104°. This statement is made by Dr. Aitkin in his work on the Science and Practice of Medicine, his principal authorities being Prof. Wunderlich and Prof. Ringer, of the University Hospital College. Dr. P. had himself met with no exception thus far to this proposition.

With reference to the experiments on small animals, of which Dr. Noeggerath makes mention, to the effect that the effects were in proportion to the amount of septine introduced, etc., Dr. Peaslee replied that the same would doubtless be the case in the conditions he had considered could we experimentally measure and then limit the dose of the poison. But the source of supply, if left to itself, did not get exhausted in cases as we see them, but the septine accumulates till the poison at length manifests itself by the symptoms he had specified.

Dr. Noeggerath remarked that he thought the attempt to make a differential diagnosis between puerperal metastatic abscess and septicæmia will have to be given up. Virchow has already given up the idea that the passage of an embolus from the uterus to any remote organ, and its lodgment in the central portion of that organ, will be the cause of inflammation. It is one of the great advances which has been made within the last three or four years, the discovery that, in the puerperal state, the inflammatory process which goes with the thrombosis is caused by the septic element which is mixed with it. This is noticeable particularly in connection with metastatic abscesses in the puerperal state. The principal cause for the thrombus becoming separated and breaking down is the presence of the effete matter which is mixed with the thrombus, and being mixed with the thrombus, is carried into the circulation with emboli from the thrombus, which enter the circulation, and these elements are the elements which produce the abscesses, and that these abscesses are only manifestations again of the septicæmia. They can never be separated clinically or pathologically; therefore, if we speak of septicæmia, we must always include as a part of it, metastatic abscess, which may or may not be present. The metastatic abscesses of pyæmia are also only another manifestation of septicæmia and the immediate result of it.

Dr. Peaslee replied that he could understand how that theory, improbable as it seemed to him, might *possibly* apply to secondary abscess produced by emboli from a thrombus, but he could not see *any possibility* of septicæmia taking any part in the formation of secondary abscesses, in case they are produced by the injection into the blood of metallic or other sub-

stances incapable of septic changes, as by H. Lee and others. In reference to the change of Virchow in his views, which Dr. Noeggerath stated, Dr. P. remarked that he would wait the confident expectation that Virchow will change his present views within the three years next to come. If his theory is correct, then his (Dr. P's.) own ideas of the distinction between septicæmia and metastatic abscess are of no importance. Dr. P. holds that the theory of this distinguished pathologist is entirely unsupported by facts.

Dr. Noeggerath explained by saying that these metals, such as mercury and other materials which are injected into the circulation, do not produce abscesses, but a sort of gangrene, while in the true metastatic abscess it has been proved that they are only accumulations of bacteria, and that even the pus corpuscles which are circulating in cases of pyæmia are crowded with these same septic elements.

Dr. Thomas asked Dr. Noeggerath what his diagnosis would be in the third case which he reported, and was answered that, without doubt, it was a case of septicæmia.

The hour for adjournment having arrived, on motion, it was made the special business of the next meeting to continue the discussion on septicæmia.

TRANSACTIONS OF THE PHILADELPHIA OBSTETRICAL SOCIETY.

Stated Meeting, March 6, 1873. Dr. Wm. Goodell, President, in the Chair.

Dr. W. F. Jenks exhibited an

UMBILICAL CORD TIED IN A SQUARE KNOT.

The fœtal heart-sounds were feeble, and were heard with difficulty upon the left side. The child was born at term, was small, about 3½ lbs., and the cord was wound twice around its neck, being also tied in the middle of its length in a square knot.

The interesting question arose, how far the feebleness of the fœtal heart-sounds depended upon the knot in the cord.

Dr. Wm. Goodell had seen two knots in the same cord and

thought that they were sometimes produced in the delivery of the child, by loops of the cord slipping down over the body from around the child's neck.

Dr. Beecher exhibited

A LIVING CHILD WITH CONGENITAL DEFICIENCY OF THE LOWER EXTREMITIES BELOW THE KNEES.

The details of this case will be given in the report of the committee appointed to examine it.

Dr. Albert H. Smith had seen cases of spontaneous amputation of a limb, but this case at first sight appeared to be one of imperfect development.

Dr. J. V. Ingham referred to a condition of the right leg, which had been noticed by Sir Jas. Y. Simpson. This presented a small tubercle about the size of the last phalanx of the little finger; on the left leg there was a similar tubercle about the size of the last phalanx of the thumb. On these, however, there were no nails, as had been the case in some of the children referred to by Dr. J. Y. Simpson.

Dr. W. P. Taylor referred to a young lady, aged 17, whose right arm was congenitally deficient below the elbow; there was a perfect and useful finger on the stump; the left arm was perfect.

Dr. J. V. Ingham presented for Dr. Ludlow an

OVUM IN THE EIGHTH WEEK OF GESTATION.

The specimen was of great interest, as it clearly exhibited a patulous os uteri and Fallopian tubes. The decidua reflexa was not attached to the decidua vera but on one side, and there was a free passage from the vagina to the ovaries, and vice versâ. This supported the views advanced by Dr. J. M. Duncan, to the effect that up to the third month a second impregnation is possible.

Dr. Wm. F. Jenks then read the following report from the committee appointed at the last meeting to examine Dr. C. A. McCall's specimen of

BLIGHTED OVUM.

Your committee would report that the specimen of a "Blighted Ovum in a case of twin conception," submitted to them for examination, consists of a fœtus apparently about three months old, the body of which is flattened by compression in the antero-

posterior diameter (the presenting surface in the accompanying drawing representing, therefore, the back of the child), while the head is twisted on the neck, so that the chin looks over the left shoulder, a profile view of the face being thus obtained. The left arm rests in close contact with the face, while the right, flexed on itself, is thrown across the chest. Anteriorly, the cord, thin and flattened like a piece of tape, can be traced with some difficulty from the umbilicus, over the left shoulder, closely encircling the neck, to a point where it becomes lost in the fragments of membrane and coagula which are attached to the specimen. The lower extremities converge and are deficient below the knee-joint; the appearance of a foot at the lower portion of the right limb is fallacious, being due to the flattened condyle of the femur.



A careful microscopical examination of the adherent membrane and shreds of tissue showed that the minute structure of the decidua could still be easily recognized, but no trace of the placental villi could be discovered, the appearance of placental tissue being due to the hardened coagula which were mechanically attached to the specimen. The fœtus is not at all decomposed, but has undergone the process of mummification, being converted thereby into the so-called "fœtus papyraceus." The examination of each tissue with the microscope showed that their individual histological characteristics were in some instances exquisitely preserved. The muscular tissue showed at once the disassociation of the fibrillæ, and the transverse striæ of the sarcous elements, while here and there brown pigmentary granules, probably derived from the coloring matter of the muscle, and cholesterin crystals were found.

The other tissues, so far as they were examined, presented all the changes, so well described by Cornil and Ranvier,* in re-

* Manuel d'Histologie pathologique, Cornil and Ranvier, p. 39.

counting the pathology of this process of "mortification or death without putrefaction."

Among the questions which were suggested to your committee by an examination of this specimen, the following seemed to them to possess sufficient interest to justify a more detailed consideration:—

1. Can this be regarded as a case of superfœtation?
2. What causes the death of the fœtus in utero at this early age?
3. What are the conditions which lead to its expulsion or retention?
4. What is the nature of this process of mummification?
5. Is the health of the mother or of the remaining child affected by the retention of the mummified fœtus?

In considering the possibility of superfœtation, your committee would call attention, in the analysis of the mass of cases grouped together under this term, to the necessity of a stricter principle of classification than is usually adopted, and would recommend the division suggested by Kussmaul, viz., superfecundation, to designate a subsequent impregnation during the first menstrual or ovular period, in a woman who has already conceived, while the term superfœtation is reserved for those cases where impregnation occurs after this terminus. The fructification of two ova, or of a single ovum with two nuclei, at one and the same coitus, results in the so-called twin pregnancy, while, in order to constitute superfecundation, two several approaches at different times are necessary. The possibility of superfecundation in the normal uterus is scarcely questioned, while the cases of its occurrence in bifid uteri, though numerically rarer, are quite beyond criticism. Experimental investigations on this point can be, and have been, so carefully made on the lower animals, and the results obtained have so universally confirmed this view, that the general text-books on obstetrics contain full and exhaustive information on this point. Adopting this more restricted phraseology, we find no difficulty in extending this theory to the human race; and in the impregnation of ova thrown off at the same menstrual period, by different and successive acts of coitus before the occurrence of the next menstrual period, we find a satisfactory explanation of the well-known and authentic instances where white women have given birth to white and mulatto children after corresponding sexual relations with a white man and a negro.

The question of superfœtation, on the other hand, is one which cannot be so readily disposed of; and while your com-

mittee find that some of the arguments which have been urged against the adoption of this hypothesis must be abandoned, other and more forcible objections have been suggested. We can, indeed, no longer accept the statement that the cervix uteri is obstructed with an impassable plug of mucus as soon as conception has occurred, nor can we admit that so close an adaptation exists between the developing ovum and the uterine parietes—at least until the third month—as to render a second impregnation an impossibility. In this connection we would call attention to the accompanying specimen of abortion at the eighth week, submitted to us for examination by Dr. Ludlow, where, in view of this question of superfœtation, the mutual relationship of the maternal and fœtal decidua claimed the especial attention of your committee. There exists, up to this date at least, a space between these two structures, so that they are nowhere in close contact, while the orifices of the os uteri and the Fallopian tubes are patulous; and although the mucous membrane is swollen and engorged, no obstacle could have existed to the passage either of an ovum or spermatazoon. The real difficulty in the adoption of this theory is scarcely alluded to by most authors, viz., the fact that during gestation the function of ovulation is in abeyance, for the periodic ripening and discharge of ova from the Graafian follicles does not take place. In opposition to this view we have, it is true, the statement of Scanzoni that in many post-mortem examinations of women who had died shortly after delivery, he had found indisputable proof of the recent rupture of Graafian follicles. In addition, to substantiate his view that ovulation during gestation is the normal and physiological condition, he urges the fact that pregnant women suffer from the regularly recurring menstrual nisus, the "molimina catamenialia," while abortions oftentimes take place at what would have been a menstrual epoch. Opposed to this statement, however, is the almost unanimous testimony of other experienced observers, that no evidence whatever of a recent rupture of an ovisac is to be found. Kiwisch, in hundreds of post-mortem examinations, never saw a case of this kind; Virchow, who paid especial attention to this point during the existence of an unusually fatal epidemic of puerperal fever, bears similar testimony; Kussmaul, from whom we have largely quoted in the consideration of this subject, has never found more than the single corpus luteum; and the individual testimony of your committee fully accords with the authorities last quoted. In this case, however, as in most of the cases of blighted ova, we can exclude all possibility of superfœtation, from the fact that

the two products of conception had only a single placenta, and, as far as can be learned, were enclosed in a single set of membranes. Hohl writes: "We find in most of these cases that the twins had only one placenta and were enclosed in the one chorion," and in nearly all of the cases where any detailed history is given this condition was found.

In regard to the cause of the death of the fœtus, your committee would call attention to the fact that in a large majority of the cases this takes place from the third to the fifth month. In 22 cases quoted by Hohl, we find that

In	13,	death	occurred	at	the	4th	month.
"	6,	"	"	"	"	5th	"
"	4,	"	"	"	"	3d	"
"	1,	"	"	"	"	7th	"

Druman relates a case in which "a lady was delivered of a most delightful girl, though her size by no means answered the expectation which might have been formed of her from the looks of the patient; 13 days afterwards there was born the head and parts of a child which had just the appearance of a miscarriage at the fourth month." Velpeau reports six cases, in all of which death took place early in gestation—and this, in fact, is the usual statement. Is the death of the fœtus, then, at this time to be ascribed to the pressure exerted upon it by the other and more healthy product of conception, as Credè and others have asserted, or can we, abandoning this fratricidal theory, find in diseases affecting either the fœtus itself, the cord, or that portion of the placenta from which it draws its nourishment, the true cause of its death? In this connection, we would draw the attention of the society to the frequency of abnormal conditions of the cord as a cause of death in the early months of pregnancy? In the case under consideration it is flattened out, ribbon-like, and is tightly wound around the neck of the fœtus; and however trifling this condition of the cord may be at or near the end of gestation, there can be no doubt but that, at this early date, the nutrition of the child must suffer. Hohl says: "In all the cases we have collected it is mentioned that the cord was membranous and thin, or thin and twisted, or short and lean, while in one case the umbilical artery was wanting." In the four cases occurring in his own practice, the cord was so tightly twisted, that when unwound it at once resumed its previously twisted condition; and in more than one case this has been associated with true stricture of the cord at a point from ¼ to ½ inch from the umbilicus. In six cases this was the

immediate cause of death at the fourth month, and in ten at the third month. Credé & D'Outrepont narrate similar cases.

Again, adhesions may form, uniting the cord either to the body of the fœtus itself, to the membranes, or to the placenta, as Regis, Smith, and Meissner report, producing thereby disturbances in the circulation, malformations, and death of the fœtus.

Velpeau reports the case of a woman attended by Raysch, who was delivered, with an interval of two hours, of one child full of life, and of an embryo which could not have been of more than three months' growth, with its cord full of hydatids. Montgomery figures a case where "the umbilical cord was only about ½ an inch in length, and much hypertrophied, being suddenly enlarged, on leaving the placenta, to 3 or 4 times its natural diameter, and again as suddenly contracted almost to a thread where it joined the abdomen of the fœtus;" and also a second case "where the umbilical cord was diseased at its placental end, where it was expanded into a lotus-shaped sac, filled with brownish serum." But not alone in the cord do we find the cause of the death of the fœtus; partial placental apoplexy may and often does cause the death of the one child, and it is not unreasonable to infer that this is the state of the case when the history gives the symptoms of impending abortion at the second or third month, which may or may not take place, according to the extent of the hæmorrhage and the individual susceptibility of the uterus.

After the death of the child it may be expelled either alone or with the other ovum, or it may be retained in the uterus, taking no part in the further development of the organ, influencing in no way the continuance and regular sequence of the phenomena of pregnancy. Sir James Simpson is disposed to regard the position of the affected ovum as the determining cause of its expulsion, believing that "if it be situated near or over the os uteri it will be expelled, the uterus will close up, and pregnancy will go on with the remaining child;" and mentions in this connection the case of "a lady who aborted of a fœtus at the third month, and was afterwards delivered of twins at term, having originally conceived of triplets." Your committee is, however, disposed to regard the pathological condition which destroys the life of the fœtus as the determining cause of its retention or expulsion. If sudden and extensive hæmorrhage take place in the placenta, the expulsion of one or both of the children (according to their position in utero) will follow, and such cases are narrated by Montgomery, Velpeau, and many others; but if the death of the fœtus be due to some malforma-

tion, or disease of the cord, whereby its nutrition is only gradually affected, that portion of the placenta which supplies it with nourishment slowly ceases to perform its function, and the uterus becomes insensibly accustomed to the presence of the foreign body, just as certain large intrauterine polypi of slow growth do not produce contractions of the organ, while a small amount of blood rapidly poured out is enough to cause the most violent uterine colic. As the fœtus is thus gradually arrested in its development, and deprived of its independent existence, it is pressed against the uterine parietes by the advancing growth and development of the joint occupant of the uterine cavity, which latter no longer enlarges in proportion to its double contents. Now, whatever relation the blighted ovum may have originally held with regard to its fellow, it is gradually pushed towards the fundus uteri, for there there exists the greatest amount of space, and the flattened-out ovum corresponds admirably to the lesser degree of curvature of this part of the organ. Hence it is that the imperfect product of conception is always expelled, when pregnancy has advanced to term, after the living child, oftentimes some hours or days elapsing between the birth of the two.

If the membranes are intact the fœtus does not undergo decomposition after its death, but, preserved in the liquor amnii, may be retained for months in the uterus, its ultimate fate being determined by its age at the time when death took place. On this point Scanzoni writes: "The considerable amount of salts which the liquor amnii contains in solution is an important element in preventing decomposition. In abortions occurring during the first few weeks of gestation, no trace of the embryo, or only fragmentary portions, can be found in aborted ova when the membranes are unruptured, while the thickened and cloudy appearance of the liquor amnii in these cases makes it more than probable that the product of conception has been more or less completely dissolved in the fluid which surrounded it. In the third, fourth, or fifth month, the fœtus looks as though it had been preserved for a long time in a feeble saline solution, viz., it is somewhat shrunken, the skin is in folds, the muscles are thicker and harder, the entire fœtus is in that condition which we designate by the name of "mummification." In the last months the alterations are more marked; the entire cadaver is swollen, all the organs are softened, the skin is discolored and is oftentimes raised in blebs, and may easily be removed in large placques; the subcutaneous cellular tissue and all the cavities of the body are filled with a discolored, bloody, serous fluid; the bones of the head are connected only loosely together,

and are readily pushed the one over the other; the umbilical cord is infiltrated with serum, is of a livid, bluish-red tint, and softened. These different changes are explained by the varying amount of saline constituents contained in the liquor amnii. Scherer and Voigt have shown that the salts diminish in direct relationship to the duration of the pregnancy, but that even at the end of the process the solution is always sufficiently strong to prevent decomposition, unless the membranes are ruptured, and the atmosphere admitted in contact with the parts deprived of vitality."

In closing, your committee would call attention to the fact that neither the health of the mother nor that of the remaining child seem to be at all affected by the retention of the blighted ovum, so long as the membranes remain unruptured. Nor is this other than we would expect, when we remember that the portion of the placenta with which the affected ovum stands in direct relationship, as the necessity for its functional activity is removed, undergoes, like other organs of the body, fatty degeneration, or is the seat of a hæmorrhagic infarctus, which gradually converts it into a hardened, discolored mass. This has apparently taken place in the present case, for it is stated that one of the edges of "the placenta, for a distance of about four inches along the circumference, and for a depth of about one inch into its substance, was altered in character—white, dense, and indurated." In most of the cases, as in the one under consideration, there are no unusual phenomena during gestation, though in a few cases the occurrence of hæmorrhage, after powerful mental emotion, or produced by some mechanical cause, with commencing labor-pains, would lead us to suspect that in these cases more or less placental apoplexy had taken place; but in the majority of instances there is nothing in the history of the pregnancy to warrant the supposition of a blighted ovum.

Dr. J. L. Ludlow then gave the following history of

A CASE OF ACUTE CONGESTION OF THE LUNGS AFTER LABOR.

The following case occurred recently in my practice, which was full of interest and instruction to me, and I hope will be equally so to the members of this Society.

My patient, about 22 years of age, who had always enjoyed an exuberance of health, was taken in labor with her first child. Its progress was perfectly natural and easy. The lochia were free, but not as much as I could have desired. The womb contracted immediately and firmly. The urine was passed

freely soon after confinement. During the day nothing occurred out of the ordinary course. She slept well during the night, and expressed herself as having had a delightful and refreshing sleep. I saw her again about 9 o'clock in the morning, when I found her somewhat agitated by something which had happened with her nurse. I left her a soothing draught, and saw her again in about three hours. I found her breathing with the greatest difficulty—her countenance purple, her features and extremities cold, her pulse feeble and oppressed. I at once saw that relief must be *prompt* and *efficient*, as she was evidently laboring under *acute congestion* or *apoplexy of the lungs*. I called for a bandage, intending to bleed her, when I was met by the surprise and outcry of some present at the idea of bleeding one *so weak*, and was told that "doctors did not bleed any more." I resolutely held to my determination, and opened a vein in her right arm; it was small, and just at the orifice a small pouch of fat almost entirely closed the opening. The few drops of blood which escaped were more like molasses than blood. Immediately I called for hot water, and bathed the left arm, and after using gentle frictions opened a vein. The blood flowed at first drop by drop, and like that from the orifice on the right arm. By continued bathing with hot water, and frictions, I finally succeeded in securing a freer flow, until it came in a moderate stream; and I did not check the flow until it had assumed a bright color and I had taken about a quart of blood. The change in my patient's condition was visible to all around. The oppression had been relieved; the pulse rose; the face lost its dusky hue; warmth returned, and a good inspiration, with a sweet smile from my almost death-stricken patient, and a whisper of thanks for the relief I had afforded her, gave me assurance that the *present danger* was past. Her chest was then covered with cloths saturated with spirits of turpentine, which were soon replaced by the flaxseed-meal jacket.

At this time I called in Dr. I. Forsyth Meigs, who fully agreed with me in the propriety of my treatment, and congratulated me upon my resolution under such trying circumstances.

The question at once suggested itself, What was the cause of this sudden and frightful condition? During the course of her pregnancy I had examined the urine, both by heat and nitric acid, and no albumen had been found; in fact, only four or five days before her confinement I had done so, and none was present. Before the arrival of Dr. Meigs I had examined the urine by heat alone (not having acid at hand), and found none; but upon his arrival I again tested it both with heat and acid,

and found an abundant precipitate of albumen. Our patient was now placed upon the ordinary treatment for congestion of the kidneys, and after a few days the urine gave no deposit. She progressed favorably until about a week afterwards, when her milk began to fail, and pain and swelling in the left leg developed itself, which was followed by acute phlebitis. This, however, soon yielded to treatment, and afterwards there was nothing to impede her rapid recovery.

A few thoughts naturally suggest themselves.

1st. What would I have done without my lancet? I always carry one, and I advise all of you to do the same. I had not used mine before for five years; but I was prepared for the emergency.

2d. Was the congestion dependent upon the albuminuria? To answer this, observations should be made upon urine taken just before labor. In this case there was no albumen only a few days before labor.

3d. Does the effort of labor have an effect in producing congestion of the kidneys, as well as of other organs of the body?

4th. If albuminuria is frequent during pregnancy, have we not gone too far in neglecting the use of the lancet and in relying too much on other means to restrain the plethoric condition of the system, especially in first pregnancies?

Dr. Ellwood Wilson remarked that his first impression on hearing the case detailed was that there would be albumen found in the urine. He thought that this condition of the lungs was a result of the presence of albumen in the urine. He had seen a case in which it was impossible to count the pulse, from its frequency. The patient was bled, and after the congestion was relieved she was stimulated, and recovered. He recalled another case, in which the woman was left, after delivery, in a good condition. He was called to her hastily, and found her apparently dying, but she recovered under a similar treatment.

In all these cases albumen was found in the urine. In many cases, after the albumen has been removed by treatment it will recur, and these patients need careful watching.

Dr. Wilson's custom is to test, weekly, the urine of those patients, especially primiparæ, who manifest ill-health during pregnancy.

Dr. Parry gave the details of a case of pulmonary apoplexy analogous to those given by Dr. Wilson, which recovered under the use of stimulants alone. He thought the albumen in the urine of all these cases was probably the result of the venous congestion.

Dr. Wilson said he was glad to have confirmation of the fact that about 85 per cent. of the cases of albuminuria occur in first pregnancies.

Dr. Goodell then detailed a

CASE OF EXCESSIVE MASTURBATION,

in order to obtain the sense of the Society as to the advisability of the operation of clitoridectomy.

A woman, aged 30, came to him and earnestly begged him to amputate her clitoris, to which organ she referred her whole trouble. She began to practise self-abuse at the age of 14 years, and has continued the habit ever since. For a number of years she masturbated five, six, or seven times daily. She was a seamstress by occupation, and worked at the sewing-machine, but in no instance was she sensible that the treadle-movement had awakened the erotic orgasm. By strong effort she could now control the desire somewhat during the day-time, but at night the temptation was irresistible. Even when unsolicited the erotic impulse came on day and night, but now with severe spasms of pain. At night she sometimes awoke and found herself rubbing the parts. The patient, according to her own statement, had led a perfectly pure life in so far as intercourse with the other sex is concerned. Her menstrual flow was regular. Two years ago, while a resident of Baltimore, her health suffered so much that a surgeon, finding the clitoris enlarged in size, amputated a portion, but this without benefit. It was for these spasms of pain, and for the excessive nervous prostration, that she sought relief by an operation.

Dr. Goodell alluded to the fact that some of the cases of amputation of the clitoris reported by J. Baker Brown were permanently cured, and asked the Society whether he should operate or not.

Dr. J. H. Packard asked whether the root of the trouble was in the clitoris.

Dr. Page suggested the use of lupulin. He had made a number of experiments with this substance, and believed it had a great effect upon the animal passions. He had never given it in combination, but always alone. In these cases the passion was uncontrollable, even though the moral sense forbade the habit. Sometimes nothing will control the masturbator but securing the hands.

He did not think removal of the clitoris would prevent masturbation unless the mind of the person had been directed to

that organ as the one causing the desire. He recommended the use of lupulin in doses of 10 or 20 grains.

Dr. J. L. Ludlow advised the combination of bromide of potassium with the lupulin. He thought that treatment should also be directed to the base of the brain.

Dr. Albert H. Smith wished to know how much of the clitoris had been removed in the operation referred to. It was likely that, in an organ so small, there would be scarce any left.

Dr. Goodell replied that he could not answer this question, because the woman was in too excitable a condition to be examined without the presence of a third person. He had, therefore, arranged to have her come to his office at a time when another physician, besides himself, could be present. He had also postponed this interview until after the meeting of this Society, in order that he might be governed by the opinion of the members.

Dr. Smith thought that the course suggested by Dr. Page would be of as much service as the excision of the clitoris. He recommended, in addition, the application of strong styptics.

Dr. Ludlow had used permanganate of potassa and hyposulphite of soda grs. x. to the seat of irritation. He remembered, however, the case of an old woman whose clitoris had been perfectly tanned by all kinds of applications, but no benefit was derived.

Dr. Page alluded to the practice of masturbation in large schools as the probable cause of much of the chorea and other nervous complaints that occur.

Dr. J. H. Packard asked as to the extent of J. Baker Brown's operation. He thought the amputation of the clitoris would not have any more effect than the amputation of the penis in the male. He suggested the removal not only of a portion of the hood but the crura and erector muscles of the clitoris.

Dr. Goodell replied that J. Baker Brown does not describe his operation, but states merely that "the clitoris is freely excised."

Dr. Harris said that reference had been made by French physicians to the evil effects of sewing-machines. This applied to the French machines only, which were worked by a double treadle, and necessarily with alternate action of the feet. On the other hand, the American machines were worked with a single treadle, on which both feet were placed.

QUARTERLY REPORT ON OBSTETRICS AND DISEASES OF WOMEN AND CHILDREN.

On a new Method for Effecting Reduction of the Uterus in Chronic Inversion. By Robert Barnes, M.D., Lond. (*Obstetrical Journal of Great Britain and Ireland, April*, 1873.)

After a few preliminary remarks on the dangers of reduction by forcible taxis, the author gives the history of two cases reduced by elastic pressure; in the first, exerted by caoutchouc bags, assisted by incisions of the os uteri at two or three points of its circumference, so as to relax or weaken the constriction formed by the circular fibres. Reduction was easily accomplished, and the patient recovered completely. In this case the diagnosis was rendered correct by "a sound being passed into the bladder and a finger into the rectum. I turned the point of the sound backwards, and readily felt it, by the finger in the rectum, just above the root of the tumor. I subsequently felt the point of the sound, which was still in the bladder, by a finger carried up behind the root of the tumor, clearly determining that the uterus was absent from its normal place."

The second case was reduced in like manner, occupying four days, during which taxis was from time to time practised. The conclusions arrived at by Dr. Barnes are that "sustained elastic pressure, aided, if necessary, by slight incisions, will not only overcome the resistance more surely, but also with greater safety."

Varicose Hæmorrhage from the Cervical Zone of the Uterus complicating Labor. By Gustavus C. P. Murray, M.D., etc. (*Obstetrical Journal of Great Britain and Ireland, April*, 1873.)

The author considers these cases extremely rare, little, if any, mention being made of the subject in most of the works on obstetrics. His attention was drawn to the subject by hæmorrhage occurring in two successive labors. In the first labor the loss of blood was unaccountable. "The second confinement demonstrated to us the cause of the hæmorrhage at the first labor, and

it became clear and convincing that these two early attacks of severe bleeding arose from the same source in both labors, and were due to an unusual varicose state of veins at the cervix uteri giving way during the commencement of labor." The treatment adopted was simple and efficacious, requiring compression from below at the early stage of the labor, and subsequently the head in coming down gave the pressure from above, commanding or keeping in check the hæmorrhage.

PELVIS OBTECTA IN CONSEQUENCE OF ARTHROCACIAL LUMBO-SACRAL KYPHOSIS OF THE SPINAL COLUMN. By DR. H. FEHLING. (*Archiv für Gynäkologie*, Vol. IV., Part 1. 1872. Pp. 1–33.)

THE person from whom this pelvis was obtained was a woman of large stature, shrunk, however, by disease of the spine, who was delivered by Cæsarean section at Altenburg in 1852, with fatal results to herself and child. The pelvis was demonstrated, in 1860, as one belonging to the spondylolisthetic class, the differences between which and the kyphotic pelvis not being as clearly known then as at present; since then Breisky, Moor, Hugenberger, Chantreuil, Höning, and others have published descriptions of specimens and determined the characteristics of the two varieties. The deformity in this case is excessive, the lumbar portion of the spinal column, with the two attached dorsal vertebræ, is precipitated into the pelvic cavity, and runs parallel with the plane of the superior pelvic strait, thus causing the head of the woman to be almost on a level with the pelvis; the bodies of the third, fourth, and fifth lumbar, and the first sacral, vertebræ are wanting, doubtless destroyed by caries at an early age; and to this circumstance the enormous flexion of the vertebral column on the rest of the sacrum is due. The distance from the eleventh dorsal vertebra to the symphysis is only 38 millimetres = about $1\frac{1}{2}''$; the rest of the pelvis is but little changed. F. gives a detailed account of the specimen, compares it with four other kyphotic pelves, and explains the origin and progress of the deformity in the various instances, stating this to be a case of arthrocacia followed by kyphosis and compensating lordosis of several of the dorsal, lumbar, and sacral vertebræ. All kyphotic pelves are distinguished from spondylolisthetic by the absolute integrity of the oblique processes, the strength of which is in some cases even increased by the new production of bone on the posterior surface, thus rendering the sliding of the bodies of the vertebræ into the pelvis impossible.

CONTRIBUTIONS TO PHYSIOLOGICAL OBSTETRICS. By DR. FRIED. SCHATZ, Leipzig, now Professor in Rostock. (*Ibid.*, Vol. IV., Part 1, pp. 34–111.)

THESE contributions are one of a series of articles, not yet concluded, which appeared first in Vol. III., Part 1, of the "Archiv," and are continued in Vol. IV., Parts 2 and 3, to be followed by others at the option and leisure of the author. They treat of the hitherto but little explored mysteries of the physiology of parturition in its most scientific sense. The investigations are on such subjects as: The determination of the amount of the expulsive and resisting forces in parturition; The pressure of the fluid-contents of the uterus during the repose of the parturient forces. (*Der intrauterine Wasserdruck bei Ruhe der Geburtskräfte*); The form-restoring power in the intervals between the pains (*Die Formrestitutionskraft in der Wehenpause*); The abdominal pressure in the painless intervals and with reposing abdominal muscles; The intra-abdominal pressure in non-pregnant women, when the body carries no weight ("*bei nicht belastetem Körper*") and the abdominal muscles exert no voluntary pressure; The theory of intra-abdominal pressure, etc. The importance of these investigations is very evident, as also the difficulty attending the solution of the questions proposed; and it is the intricate and complicated nature of the experiments and reasoning called for by these difficult problems which causes us to prefer deferring our report of them until the whole series has appeared, when we shall endeavor to do them justice.

INVESTIGATIONS ON THE AMOUNT OF BLOOD IN BREEDING DOGS. By OTTO SPIEGELBERG and RICHARD GSCHEIDLEN, Breslau. (*Ibid.*, Vol. IV., Part 1, pp. 112–120.)

FORMER researches by Andral and Gavarret, Becquerel and Rodier, Reignauld, Kiwisch and Scanzoni, had ascertained a diminution of the solid constituents of the blood in the latter months of gestation and given rise to the term *chloro-anæmia of pregnancy*. Weighty reasons, however, were brought forward by the majority of French obstetricians, and particularly by Kiwisch among the Germans, against this theory, and a compromise was made between the two opinions, according to which a combination of plethora and hydræmia, *serous plethora*, was supposed to be the normal condition of gravid women. To determine experimentally this still somewhat undefined condition, the authors instituted a series of investigations on the amount of blood in female dogs, both with and without

young. Six of the former and ten of the latter were employed in the experiments, and the following results arrived at:—

In non-pregnant sluts the average quantity of blood is $\frac{1}{12 \cdot 7}$ of the weight of the body, or 7.87 per cent.; in pregnant sluts the average is $\frac{1}{11 \cdot 1}$ of the weight of the body, or 9 per cent.

Of the first five breeding sluts, with an average weight of the uterine contents of 657 grammes, the average quantity of blood was $\frac{1}{12 \cdot 8}$, or 7.8 per cent.; of the last five, belonging to a later period of gestation, the uterine contents weighing 1193 grammes, the average quantity of blood was $\frac{1}{9 \cdot 4}$, or 10.5 per cent.

Thus an *absolute increase of blood* is discernible during pregnancy, but only during the last half of that period.

The average quantity of *hæmoglobine* in the non-pregnant dogs was found to be 0.733, in pregnant dogs, 0.766; thus showing a slight increase.

The average quantity of *water* in the blood of non-pregnant dogs was ascertained as 802, of pregnant dogs as 810, out of 1,000 parts; also a slight increase.

Thus we see that the whole amount of blood is increased during pregnancy, but the relative quantity of solid and fluid constituents undergoes but a slight change, being a little augmented, but generally dependent on the degree of nutrition of the animal.

Remarks on Twin-Pregnancy. By Dr. P. Reuss, Würzburg. (*Ibid.*, Vol. IV., Part 1, pp. 120–144.)

This paper is a criticism on *Kleinwächter's* book "*Die Lehre von den Zwillingen, Prag.*, 1871," and ably refutes the extreme maxims on therapeutical interference advocated by that author, who, speaking from his experience in the lying-in wards of Prague, advises the version and extraction of the second child immediately after the birth of the first, without waiting to see whether the spontaneous efforts of the uterus are able to expel it or not, and brings various reasons in proof of his position. Reuss quotes numerous statistics from authors, hospitals, and the Würzburg Institution, compares the results for mother and child of Kleinwächter's treatment and those of operators who followed the expectant method, and finally arrives at the doubtlessly correct and generally adopted conclusion, expressed in the motto from "Gynæceium Hermanni Corbei, Frankofurti, 1620," at the head of the paper, that when there are twins in the uterus the same therapeutical attitude is to be observed as in a single birth, and all unnecessary and hasty interference is to be avoided.

CONTRIBUTIONS TO THE QUESTION OF PODALIC VERSION IN DEFORMED PELVES. By DR. S. BORINSKI, Sohrau, Silesia. (*Ibid.*, Vol. IV., Part 2, pp. 226–237. 1872.)

THE author publishes a detailed account of 93 cases of podalic version performed in deformed pelves, in the clinic of Prof. Spiegelberg, in Breslau, from the autumn of 1865 to February, 1872, and draws therefrom the following conclusions: Since 53.3 per cent. of the children were born dead after version, and only 29.2 per cent. (94:322) after all the other forms of delivery, it would seem that the preceding head offers the best chance, even in any kind of deformity. The varieties of deformed pelves were: flat (*platt*), with conjugate diameters varying from 9.5 to below 8 centimetres (3½″ to less than 3″), generally and equally narrow; funnel-shaped, generally narrow and flat, and asymmetrical. As far as the preservation of the child alone is concerned, we should therefore hardly ever perform prophylactic version, unless some particular danger in the individual case oblige us to do so. The generally-narrow pelves of all kinds are least favorable for version, especially if the conjugate is extremely short. Those shortened only in the conjugate diameter give the best prognosis; below 8 centimetres, however, the circumstances are analogous to those in general deformity, because the transverse diameter then only comes into consideration under most favorable conditions. Exceptions and unlooked-for favorable results of version only show that each separate case must be treated according to its individual merits. One instance in which a change of presentation becomes necessary is when the head does not perform the usual rotation while passing through the pelvis, but being caught by a high, steep, anterior pelvic wall, and a low promontory with a narrow conjugate, becomes impacted in the cavity of the pelvis, which occasionally happens in asymmetrical and oblique deformity, the posterior parietal bone presenting (posterior parietal presentation), or when a high promontory and low anterior pelvic wall retain the head in an angle with the trunk open posteriorly, and the examining finger finds the anterior parietal bone lying flat on the pelvic brim, and reaches one ear before the symphysis (anterior parietal presentation). Here the retention of the head and the danger to child and mother require the rectification of the position by podalic version, provided the pelvis be not generally narrow. A judicious application of the forceps, when the head has passed the constriction or is in the pelvic cavity, appears to enable the extraction of more living children than podalic version. Primary breech- and footling- presentations give

better results for the children than when version and forcible extraction are performed. In conclusion, the author gives Spiegelberg's position on the subject, as follows: On the one hand, he supports and strengthens the reasons given by the adversaries of version, and on the other he advises prophylactic version, but only in pelves with a simple conjugate deformity, when the cause of the defective fixation or progress of the head lies in the unfavorable (anterior or posterior parietal) positions just described.

CONTRIBUTIONS TO OUR KNOWLEDGE OF THE HUMAN PLACENTA. By DR. F. N. WINKLER, Jena. (*Ibid.*, Vol. IV., Part 2, pp. 238–265.)

THE author explains the incompleteness of his former paper, "The Texture, Structure, and Cellular Life in the Adnexa of the Human Egg, Jena, 1870," by the difficulty in sufficiently hardening his preparations, and highly recommends the method now used by him, and originally suggested by Rindfleisch. After a slow and careful injection of the fœtal vessels with a concentrated decoction of glue colored with Prussian blue, which is injected in a hot condition, while the placenta itself is held in warm water, until, in one-half or three-quarters of an hour, six or eight syringefuls (each containing about fifty cubic centimetres) have been injected, the villi have become distended, and the blood has ceased flowing from the umbilical arteries, the open vessels are ligated, and the placenta is placed into alcohol at 96½ per cent., which is changed, during the next three to four days, 6–8 times. Then cubes about 1.5 centimetres square are cut out of the placenta, placed in ice-water for a few minutes, then in a solution of gum-arabic and glycerine for twenty-four hours, and again for one or two days in alcohol, when they are finally ready for use. The sections are to be laid in a weak solution of carmine for 2–3 hours, when the fœtal portion will appear strongly, the maternal but slightly, tinted. According to Winkler, the fœtal portion has no part whatever in the architectural basis of the finished placenta, which is formed entirely by the maternal vessels; he consequently uses the expressions, *Brutto* (*gross-*) *placenta*, meaning the whole organ as it is formed and born, and *netto-placenta*, deducting the fœtal portion. The cavernous system of the *net-placenta* is bounded towards the uterus by the *basal-plate* (serotina), and towards the fœtus by the *closing-plate* (*schluss-platte*). The basal-plate, called by Dohrn, Langhans, and others, simply maternal placenta, consists of two layers, one, near the uterus, composed of small cells,

the other, towards the fœtus, of large cells. Looking from the uterus, we find in this plate a number of openings for the communication between the uterine sinuses and the placental blood-spaces, which latter are seen to be lined with a distinct endothelium. The *closing-plate* shuts off the superficial cavernæ towards the fœtal surface of the placenta, and lies in close contiguity to the epithelial layer of the chorion, beyond which we find gelatinous matter, and finally the amnion. The opinion of Virchow, that all vascular spaces of the net-placenta consist of ectatic capillaries with a consecutive cavernous dilatation, is shown to be correct.

In the fœtal placenta we find, among other things, three kinds of villi: (*a*) those which are obliterated, have no epithelium, and end in the closing-plate without penetrating the cavernæ; (*b*) those which end in the superficial cavernæ and are covered with epithelium only as far as they hang free; (*c*) the really important villi, which are covered throughout with epithelium, divide into numerous branches and penetrate to the deepest cavernæ, and even into and through the basal-plate. All villi are devoid of epithelium as long as they do not hang free in the cavernæ, or when they are surrounded by maternal tissue. This direct contact between maternal and fœtal vessels is quite extensive, and the absence of the protecting epithelium consequently affords sufficient opportunity for the transmission of various morbid influences and hereditary impressions, and facilitates the immigration of specifically impregnated cells. This condition may be considered "the heel of Achilles of the whole ovum." The capillary plexuses exist in the chorion until about the middle of gestation, and are then replaced by lymphatic spaces or ducts (*saftcanälchen*), which traverse the interstitial cellular layer of the chorion, the colloid layer, and the amnion, piercing the epithelium of the latter and opening free into its cavity. These "*saftcanälchen*" are extensively connected with the blood-vessels, principally with arteries. The origin of the amniotic fluid from these capillaries and lymphatic canals is extremely probable, according to Jungbluth, and the influence which the persistence of the capillary plexus or the ectasia of the lymphatics would exert on the formation of hydroamnios is sufficiently evident, and indeed demonstrated by Jungbluth's and Winkler's investigations. After the first inspirations we frequently see the new-born infant become suddenly pallid, asphyctic, or affected with violent dyspnœa; this condition is owing to the rapid filling of the pulmonary circulation and the consequent drain on the arterial system, and lasts until the circulation becomes regulated. To prevent this occurrence, it seems advisable not to ligate the funis

until the placenta has also been expelled, or at least until the pulsation in the cord has ceased, its color has become pale, and the umbilical vein is entirely empty, in order that a certain quantity of blood may still pass to the fœtal circulation and remedy the above-named deficiency. Schultze's method of resuscitation, by swinging the child by the arms and feet, would seem to be the proper treatment to be employed for the removal of this asphyxia pallida. As regards the building-up of the placenta, the only point distinctly recognized by Winkler is the growing-in of the villi of the chorion into the follicles of the uterine mucous membrane (*Utriculardrüsen*). Cretaceous deposits occur in normal, full-grown placentæ in almost every case, and not only in 5.10 per cent., as Carus states, and occasionally extend through the whole thickness of the placenta. The maternal tissues are generally principally affected, more rarely the villosities also, and most unfrequently the villosities alone; generally these latter are so little diseased as very seldom to endanger the fœtal existence. Nowhere else in the fœtal system of the placenta do we find calcareous deposits.

We have been able to extract only the principal points; the minutiæ and technicalities of the microscopic investigations must of course be studied in the original.

STUDIES ON OBSTETRICAL SUBJECTS. By DR. HEINRICH LAHS, Marburg. (*Ibid.*, vol. iii., part 2, p. 195–220, continued vol. iv., part 2, p. 310–335.)

I.—*Pressure on the axis of the ovum or general pressure of the uterine contents?* (*Fruchtaxendruck oder allgemeiner Inhaltsdruck?*)

THE author opposes the views of Schroeder and Schatz on the mode of action of the expulsive forces during labor, who represent the pressure on the axis of the ovum to be the result of the form-restoring force of the uterus, and consider the child to be born, in all normal confinements, except cases of hydramnion, by means of this axis-pressure of the ovum. Lahs points out the thickness of the uterine walls, their oval shape during rest, and their spherical form and general equal contraction during a pain, the direction which the head would take under the action of the expulsive forces on the vertical axis of the ovum, and the injury necessarily resulting to the child if this were really the mode of its expulsion, and by means of complicated and abstruse reasoning and physico-mechanical explanations (a style of writing in which both *Schatz* and *Lahs* are particularly proficient, and which makes a *short* ac-

count of the distinctive and separate points of their articles almost impossible) arrives at the following conclusions: 1. An equal spherical shape of the uterine walls is impossible when a pressure on the fœtal axis is admitted, because when the curve is everywhere alike the fundus cannot be touched by the general pressure of the uterine contents, plus the fœtal-axis pressure, and can therefore perform a greater amount of work than the lateral walls, which only have to stand the general-contents pressure. 2. The fœtal-axis pressure is never greater than the difference of the force, which results from the degree of arching of the fundus and the rest of the uterine wall. The smaller this difference is, the less will it be compared with the force of the general-contents pressure, and the less will be the amount of the fœtal-axis pressure compared with the amount of the general-contents pressure. 3. We then see that in normal labor the *general-contents pressure* is the expulsive force; that in all cases where the uterus assumes an equal spherical form during the pains, the fœtal-axis pressure can have only a minimal influence compared with the general-contents pressure, and that the latter in these cases is essential to the mechanism of labor.

II.—*On the influence of the supports of the uterus during labor, especially in cases of deformed pelvis.*

1. The contraction of the uterine walls without the simultaneous aid of the expulsive forces is capable only of adapting the head to the bony brim of the pelvis with the pressure of the weight of the whole uterus; the further configuration of the head with mere parietal contraction takes place only by means of the resistance of the lower segment of the uterus. The stronger this resistance is, the greater will be the configurative effect on the head.

2. The possibility of completing a delivery by the mere parietal contraction of the uterus, in case of obstacles which present themselves only after the head has descended into the pelvis, is therefore present only as long as these obstacles are inferior to the total weight of the uterus.

3. The uterus is capable, by simple parietal contraction, in virtue of the resistance of its inferior segment, and in direct proportion to the degree of this resistance, of surmounting much greater obstacles, arising from a disproportion between the head and bony pelvis at the brim of the pelvis than at its outlet.

4. The broad and round ligaments come into play at each pain, and produce a more active approach of the inferior portion of the uterus to the brim of the pelvis; we may say, the pressure

of the weight of the uterus is increased by them. Hence we may infer that greater obstacles on the part of the bony pelvis may be overcome than would otherwise be possible.

5. Notwithstanding the action of the broad and round ligaments, the degree of resistance in the pelvis may be such, and the pressure of the contents be consequently so much increased, as to cause the lower portion of the womb to leave the brim of the pelvis and endeavor to recede over the pelvic extremity of the fœtus. In consequence, as points of fixation for and as antagonists to the inferior uterine segments, the broad, vesico- and recto-uterine ligaments come into action, and become taut as the uterus leaves the pelvic brim.

Inasmuch as the uterine walls, during contraction, are endeavoring to withdraw equally towards the fundus, those portions of the broad ligaments nearest the lower half of the uterus will undergo the greatest tension, and those nearest the fundus the least; the round ligaments, being inserted near the fundus, are very little affected by this retrograde contraction of the uterus.

The vesico- and recto-uterine ligaments are put equally to the stretch in their whole extent.

The vagina for a time follows the inferior uterine segment in its retraction over the advancing head, and then resists its further retreat by different degrees of tension, which are influenced, 1, by the amount of frictional resistance exerted by the pressure of the presenting part against the pelvic brim; 2, by the resistance arising from its dilatation in order to surmount the periphery of the head; and, 3, by the degree of tension of the portion situated below the brim of the pelvis.

The degree of fixation of the uterus to the brim of the pelvis, by means of the broad, round, vesico- and recto-uterine ligaments and the vagina, determines the configurative or adaptive force which the bony pelvis exerts on the head.

So long as the lower uterine segment is still situated between the head and the pelvic brim, the amount of configuration of the head by the pelvis during a pain corresponds to the force of weight of the womb plus the extreme contraction of the broad and round ligaments; when the lower segment has withdrawn beyond the brim of the pelvis, a tension of the ligamenta lata, vesico- and recto-uterina results, and through the degree of this tension the amount of configuration of the head in the pelvis is increased; finally, when a tension of the vagina below the pelvic brim is added, the configurative force of the pelvis is also increased in accordance with the amount of this tension.

The abdominal muscles by their contraction during labor exert a general pressure on the uterine surface above the brim of the pelvis, increase thereby the general-contents pressure, press the uterus firmly into the pelvic brim, in a great measure aid in fixing the inferior segment and the contained head within the brim of the bony pelvis, whereby the disproportion of the head and pelvis is removed as much as possible by configuration of the former, and increase the frictional resistance between the inferior portion of the uterus and the brim of the pelvis.

III.—*On the effect of the complete discharge of the amniotic fluid in preternatural presentations (a cause of tetanus uteri).*

This affection of the uterus during labor is generally described as a tonic spasm of the organ, which would presume a firm and close embrace of the fœtus by the contracted uterine walls. This spastic contraction of the womb does not take place, according to Lahs, neither is the fœtus so firmly embraced nor the presenting part (generally the shoulder) so firmly pressed into the pelvis, as would be consistent with tonic spasm; besides, it would be impossible for the uterine parietes in tonic contraction to adapt themselves so closely to the various irregularities of the fœtus as to allow of their being distinctly palpable. Lahs gives the following explanation: Inasmuch as in preternatural presentations the lower segment of the uterus is but incompletely filled by the presenting part, consequently a premature rupture of the membranes is more common, the amniotic fluid will gradually flow out, and finally the voluntary contractions of the abdominal muscles will entirely empty the uterus of its fluid contents and approximate the uterine parietes closely to the fœtus, which will thus be enveloped and "held fast, but not constricted," as Kilian says. Gradually the uterus will contract slowly and diminish in size, whereby its walls will appear permanently contracted to the examining hand, giving rise to the false impression of tonic spasm; those portions of the uterine wall which are not completely filled by the adjacent portions of the fœtus will then act as an aspirator on the fœtal surface and produce an increased afflux of blood to that spot, similar to cups; the other convex portions, completely occupied by the fœtal members, will compress them and empty the blood-vessels. We can thus explain the sugillations and discolorations not unfrequently found on the skin of the fœtus, as well as similar internal changes. The ease with which the hand can be introduced into the uterine cavity and version performed at this time, is also thereby explained. As this contraction and the incessant

irritation of the fœtus continues, little by little the uterine tissue becomes congested, inflamed, and finally an exudation takes place, which coagulates and leaves the uterus in a measure solidified in the form in which it happened to be enveloping the fœtus. This now is the real, worst form of tetanus uteri, or, as Naegele calls it, *constrictio uteri spastico-inflammatoria;* and here we can easily conceive the difficulty of performing version, and the ease with which a rupture of the uterus may thereby be produced.

IV.—*On the cause of the first inspiration of the new-born infant.*

Schwartz ascribes the reason for the first inspiration of the new-born child to the interruption of the placental circulation and the consequent want of oxygen in the blood. B. S. Schultze believes that, before the want of oxygen has reached a sufficient degree, the first inspiration is excited by the cooling-off of the cutaneous surface of the child. Lahs, by following up the changes in the uterus occurring during labor, and by experiments on animals, has arrived at a third explanation, which he thinks gives us the immediate reason for the typical occurrence of the first inspiration, viz.:—The physiological first inspiration of the new-born infant, as a rule, takes place in consequence of and immediately after the sudden or rapid expression by the expulsive forces of the placental sinuses through the umbilical vessels towards the fœtal heart and its further consequences; the conditions for such an expression in a normal, not artificially terminated, labor are found for the first time during the passage of the child through the vulva, or very soon after that passage; and in all cases, where the sudden and rapid expression of the placenta has not taken place at or soon after the complete birth of the child, the latter will for a time be in a state of apnœa. Thus we explain those cases in which the child was born without active contractions of the uterus, and consequent expression of the placental vessels, and therefore remained for a time apnœic, such as extractions with the forceps with deficient labor-pains, Cesarean section, and when the fœtus is born with a caul.

V.—*The negative pressure in the uterine cavity.*

A negative pressure, that is, a lesser pressure than that of the atmosphere, is never met with in the interior of the uterus under normal conditions during labor. Exceptions to this rule, however, are not quite unfrequent, and intra-uterine negative pres-

sure is met with in the following instances: 1. In cases of irregular contraction of the uterus, such as are mentioned above under IV., as tetanus uteri, an aspiration of the fœtal surface, and therefore, of course, a quasi-vacuum or negative pressure takes place within the uterus. 2. Operative interference in anomalous labor cases, as well as operative manipulations of the uterus in general, are liable to produce negative intra-uterine pressure. In a protracted abnormal labor the uterine walls will finally become inflamed, resistant, and will lose their power of contraction and configuration. If, therefore, the fœtus is operatively removed at once, or piecemeal, the uterus will not close on the removed part, as it does in normal labors, but there will be a vacuum left, and therefore, also, negative pressure. This vacuum will, of course, greatly retard the completion of the extraction of the fœtus, and, if the tractions be forcible or long continued, hyperæmia of the uterine mucous membrane, and finally hæmorrhage, will ensue; this hæmorrhage will fill the vacuum and facilitate the extraction—a circumstance which points out a remedy to us, viz., the injection of fluid, medicated or not, into the uterus, above the fœtus, during the operation. 3. The removal of the detached ovum in abortion, of intra-uterine polypi after the pedicle has been divided, of sponge-tents, of the retained placenta, will occasionally meet with an obstacle in the intra-uterine negative pressure. The retention of the placenta is usually supposed to be owing to partial spastic constriction below its seat—"hour-glass contraction"—but it is extremely probable that the violent contractions of the uterus during protracted labors result in an exhaustion of the less muscular placental insertion, the rest of the uterus rallies more rapidly, contracts again, and thus we find the hour-glass contraction occurring without spasm. 4. In podalic extraction, performed for deficient labor-pains, we not unfrequently find the negative pressure during the operation expanding the lax uterus and simulating a pain, which phenomenon generally disappears when traction ceases, no matter how short the latter may have been. The frequent lesions of the child's head, ecchymoses, and infiltration of the scalp and pericranium, and œdema of the brain, found after such extractions, are doubtless in a measure referable also to this negative pressure. 5. The indications to be drawn herefrom are evidently (1) to seek to fill the vacuum by the injection of fluids above the fœtus, ovum, placenta, polypus, etc., while operating, and (2) to attempt the adaptation of the uterus to its contents by pressure on the fundus from above; this latter measure should never be omitted in difficult podalic extraction. 6. The action of nega-

tive pressure likewise aids in increasing the difficulty of the reposition of an inverted uterus, and, 7. In producing hyperæmia and capillary hæmorrhage in the uterine cavity during the slight uterine contractions at the menstrual period.

On Versions and Flexions, particularly on the Mechanical Treatment of Retro-deviations of the Uterus. By Prof. B. S. Schultze, Jena. (*Ibid.*, vol. iv., part 3, p. 374–417.)

After giving his views on the general pathology and therapeutics of versions and flexions, and laying especial stress on the value of the combination of mechanical supports, with measures calculated to increase the tonicity of the parts, the author sums up the following conclusions:—

1. The normal position of the uterus, when the bladder is empty, is anteversion or anteflexion. In the erect posture the so-called posterior surface of the uterus points almost directly upwards.

2. Anteversions and anteflexions are anomalous only when the uterus is immovable or limited in its motions in the above positions.

3. Abnormal tension or shortness of Douglas's folds (generally resulting from parametritic processes) is the most frequent cause of anomalous fixation of anteversion and uncommonly high degrees of anteflexion.

4. On the other hand, a slackening of Douglas's folds (relaxation of the musculi retractores uteri) necessarily leads to retroversion and retroflexion, and is their commonest cause.

5. A flexion of the uterus almost without exception occurs directly in its originally anterior or posterior plane; if the body of the flexed uterus looks more to the right than the left, a rotation on its axis of the whole organ is present. Unequal shortening of Douglas's folds in anteflexion, unequal relaxation in retroflexion, is generally the cause of this axis-rotation.

6. The normal anteversion and anteflexion of the uterus when the bladder is empty, the abnormal anteflexion with posterior fixation, the retroversion and retroflexion with relaxed folds of Douglas, are, under the above conditions, all the result of one and the same intra-abdominal pressure.

7. To recognize the normal position and reducible deviations of the uterus the sound is insufficient; bimanual palpation only leads to a definite result.

8. Abnormal anteversion and anteflexion of the uterus, *i.e.*, its

fixation in that position, demands the treatment likely to cause absorption of the exsudation causing the fixation; mechanical treatment of anteversions and anteflexions is useless and often hurtful.

9. Retroversions and retroflexions should be reduced when they are reducible, but manually, not by the sound; generally it is necessary to retain the reduced uterus in the normal (anteverted) position by mechanical means.

10. The only rational way of keeping a retroverted or retroflexed uterus reduced is retroposition of the vaginal portion. The intra-uterine pessaries generally used, as a rule, do not effect this object, which is attained by the vaginal pessaries recommended by S. (an 8-shaped pessary bent to an S form, in the posterior loop of which the cervix rests, the anterior loop is drawn out corresponding to the length of the vagina; and an oval ring-pessary, bent almost double on itself like a cradle, the anterior portion being more acutely bent towards the posterior, so as to press against the cervix; both pessaries are of flexible copper-wire covered with rubber, and must of course be adapted to each case). The intra-abdominal pressure keeps the uterus in normal anteversion as soon as the cervix is fixed behind.

11. Rarely the intra-abdominal pressure is not able to reduce the flexion. If in such a case, after retroposition of the cervix, there is still trouble, an intra-uterine pessary may be added to the vaginal support (a straight stem of hard rubber movably attached to the pessary).

THE SEIZURE OF THE FEET DURING VERSION. By DR. FRITSCH, Halle. (*Ibid.*, vol. iv., part 3, p. 483–498. 1873.)

THE author describes and illustrates the normal rotation made by the child during version, enumerates the different opinions of numerous obstetricians, both living and dead, as to which foot should be seized, the upper or lower, in order to bring the back of the child forwards, and calls attention to the fact that no definite general rules are given in this respect. From a number of versions performed in various ways he draws the conclusion, that it is unnecessary and wrong to waste time in trying to reach the upper foot, but that the foot first met with should be used to turn the child, as it is quite immaterial whether the back be turned forwards or backwards immediately after the version; during the course of the podalic extraction, if it be carefully and not too violently performed,

the back will generally, if the pelvis be not deformed, turn anteriorly as desired. If the amniotic fluid has long been discharged, and the uterus is firmly contracted, both feet must, of course, be seized and brought down.

VARIOUS INFORMATION ABOUT OLD PRIMIPARÆ. By DR. COHNSTEIN, Berlin. (*Ibid.*, vol. iv., part 3, p. 498–510.)

ACCORDING to various authors and the general impression hitherto, the confinements of old primiparæ, *i. e.* those above the age of 30, are characterized by certain peculiarities, of which the following are the most reliable:—

1. The children of old primiparæ, as well as multiparæ, are larger than those of young primiparæ, their weight increasing progressively up to the 44th, their length up to the 40th, year. The large transverse diameter of the fœtal head attains a disproportional size when the mother has passed her 35th year.

2. The soft parts are less yielding and more rigid; protracted labor, ruptures of the perinæum, and disturbances during the expulsion of the placenta, are therefore more common. In addition there may be anchylosis of the coccyx.

3. Deformed pelves are more common, not that the advanced age of the primipara has any connection with the capacity of the pelvis, but that the deformity in itself may for a time prevent conception, or the known dangers resulting therefrom may induce the woman to avoid getting into that condition.

4. Face-presentations, caused by the disproportion between the capacity of the pelvis and the size of the child's head, are more common.

5. Eclampsic convulsions occur more frequently.

6. A premature rupture of the membranes occurs most frequently between the 36th and 40th years; the advanced age of primiparæ favors a frequent change of position of the child during the last months.

7. Women, long sterile, not unfrequently fall victims to extra-uterine pregnancy.

8. Old primiparæ are more liable to puerperal diseases and to mania.

Cohnstein has collected the cases of 393 primiparæ, ranging from 30 to 50 years (2 of the latter age), and reports the following data:—

1. No difference in the course and duration of pregnancy.

2. Of 377 children, 140 = 37.13 per cent., were born dead, 29 = 7.69 per cent., died within the first week.

3. Of 389 mothers, 115 died—2 during pregnancy, 8 during labor, 105 during the puerperal state.

4. Deformed pelves were found in 42 per cent.; of the 166 deformities, 61 were rachitic.

5. The number of operations in general was 287 = 57.7 per cent., among them 142 forceps cases! 83 mothers died, 136 children were still-born; in narrow pelves alone, 162 operations (in 153 persons) = 97.59 per cent., 54 mothers died, 90 children were still-born.

6. Breach and footling presentations occurred more frequently than usual, in 2.54 per cent., also shoulder-presentations in 4.07 per cent., face-presentations in 5.3 per cent.

7. Twins were born 17 times, triplets once (the third child remained living).

8. Extra-uterine pregnancy, six times, with three deaths.

9. Placenta prævia 6 times, thrice with deformed pelves, once with twins; 5 children were still-born, 2 mothers died.

10. Eclampsic convulsions were very common, in 9.9 per cent., appearing most commonly during labor (62.5 per cent.); 12 mothers died, 18 children were still-born. The convulsions were more frequent with wide (82 per cent.) than with narrow pelves (18 per cent).

11. Deficient labor-pains were very common, in 119 cases = 30.2 per cent., and necessitated artificial delivery in 84 cases, mostly forceps. As causes, were assignable narrow pelvis 21 times, premature rupture of the membranes 22 times; the latter occurred in all 44 times = 11.19 per cent. Spastic contractions occurred 19 times (in 13 cases the os internum alone was rigid); 3 cases of precipitous delivery took place.

12. Prolapse of the cord 4.58 per cent.; the reposition succeeded only in one-third of the cases.

13. Hæmorrhage post-partum was common, 38 times = 9.6 per cent.; manual removal of the placenta 26 times, also more frequent than usual.

14. Ruptures of the perinæum 14 times = 3.56 per cent.

15. Mania 5 times, with complete recovery.

16. Besides the deformed pelvis, various malformations and diseased conditions of the external and internal genital organs appeared to have exerted an influence on the late period of impregnation; such as rigidity of the vagina and introitus 16 times, rigidity of the external os 13 times, conglutination and firm closure of the external os 9 times, fibroid and sarcomatous tumors of the uterus 15 times, imperforate hymen, want of perinæum, uterus bicornis each once, and various similar conditions.

17. In conclusion, let it be stated that the above cases of old primiparæ do not confirm a progressive increase of the described anomalies from year to year, at least not up to the 41st year; after that age the number of cases is too small to allow of any general conclusions being drawn from them (which seems to be pretty much the result of the whole investigation. —Rev.)

The Labors of Old Primiparæ. By Dr. Ahlfeld, Leipzig. (*Ibid.*, vol. iv., part 3, p. 510–520.)

The results obtained by Ahlfeld from the analysis of 102 primiparæ above 32 years (this being the middle of the 35 years of the period of ovulation), are substantially the same as those by Cohnstein, but the real facts are more precisely stated:—

1. The labors of *old* primiparæ are, on the whole, more unfavorable than those of younger primiparæ.

2. The deficient labor-pains, inducing a longer duration of the labor, prostration, and nervous excitement, hæmorrhages post-partum, puerperal disease; and

3. The rigidity of the soft parts, causing slow dilatation of the os, unusually painful contractions, protracted duration of the labor, lacerations and contusions of the parts, hæmorrhage from wounds, puerperal disease, are the two principal reasons for the various anomalies.

4. Operations (particularly forceps) are more commonly required.

5. The children of old primiparæ suffer particularly from the long duration of the labor and the necessary operations. (Of 13.5 viable children in general, only one is still-born; in old primiparæ the proportion is 1 to 3.1.)

A Contribution to Spontaneous Labors in Deformed Pelves. By Dr. P. R. Osterloh, Dresden. (*Ibid.*, vol. iv., part 3, p. 520–531.)

To determine the relative value of operative interference, in opposition to the expectant or passive treatment of labors in deformed pelves, the author has analyzed 206 cases of deformity of the pelvis, of different degrees, observed in the Lying-in Hospital at Leipzig, of which 139 were delivered spontaneously, and thinks he has demonstrated the generally favorable termination both for mother and child of the spontaneous deliveries.

The occurrence of a spontaneous delivery in a pelvis with a

conjugate diameter of less than 7.67 centimeters = 2″ 9‴, is to be regarded as a very rare exception.* (This was the lowest measure of the 206 cases.)

Direct danger of life for the mother in puerperio does not result from the deformity of the pelvis alone after a spontaneous delivery.

Of the 139 cases with 140 children, in 34 the deformity was so slight as not to be of any influence; of the 105 women with 106 children remaining, 4 of the former died of diffuse peritonitis; 38 fell sick, but recovered; of the children, but 7 died during labor or from its effects.

The deduction to be drawn therefrom evidently is, to give nature more scope in moderate pelvic deformity. Where the true conjugate diameter is from 7 cm. to 9 cm. (or 2″ 6‴ to 3″ 3‴), or the diagonal conjugate from 8 cm. to 10.75 cm. (3″ to 4″), artificial aid is not required by the pelvic deformity alone.

A New Case of Dilatation of an Osteomalacian Pelvis during Labor. By Dr. Theodor Kezmarszky, Pesth. (*Ibid.*, vol. iv., part 3, p. 537–547.)

The author relates the first case of osteomalacia published in Hungary. The woman had noticed the first signs of the disease six years before, during her second pregnancy: those symptoms increased during the third gestation, which was terminated without much difficulty, contrary to the expectation of the attending physicians, and in her fourth pregnancy, May, 1871, the condition of the patient was such that she could barely walk or move without assistance, and presented an emaciated, exhausted appearance. The pelvis was found to be excessively deformed, particularly the outlet, which had assumed the shape of a stout, broad bottle, the point of the sacrum projecting into its cavity like the bottom of a champagne-bottle. The distance from the point of the sacrum to the narrowest point of the arcus pubis, which presented the usual bill-shaped deformity in the most marked degree, measured about 5 cm. = 1″ 10‴; the external conjugate diameter measured 19.5 cm. = 7″, thus admirably proving the excessive contraction of the pelvic cavity. Considering that the superior strait is generally less deformed than the inferior in these cases, which fact seemed to be confirmed by examination, that the last labor was unexpectedly easy, and judging from the recent advent of the disease,

* That it may repeatedly occur with such a conjugate may be seen by referring to the case of Mehrwald, reported on p. 28, vol. vi., No. 1, of this Journal.

which allowed the crests of the ilium to be slightly bent, it was thought advisable to wait and see whether the soft bones would not gradually yield before the advancing fœtus, while at the same time the necessary preparations for the otherwise inevitable Cesarean section were made. This expectation was fully realized; for the examining finger could feel the pelvic cavity gradually enlarging under the pressure of the presenting part, which could only be recognized as the breach when, after a labor of 33 hours, it passed the external orifice; the head was easily extracted by traction. The female child soon commenced to cry, but did not nurse, and died in five days. Its dimensions were: weight, 1,682 grammes = 4 lb. 6 oz.; circumference of head, forehead—neck, 27; forehead—occiput, 28; chin—occiput, 29 cm. Diameters: straight, 9.5; small diagonal, 9.2; large diagonal, 10.3; small transverse, 7; large transverse, 7.9 cm.

Immediately after delivery the arcus pubis was so dilated as to allow both fingers to be passed into it; 60 hours later it had again contracted nearly to the size before labor, and only the first phalanx of one finger could be introduced between the two branches of the bill.

The woman died of peritonitis on the ninth day. At the autopsy the bones of the pelvis and the ribs were found soft, flexible, and easily cut with a knife. The most important measurements of the dried pelvis are: cristæ ilii, 27.0; trochanters, 24.5; conjug. ext., 19.3; right diagon. diam., 20.7; left diagon. diam., 20.3; conjug. vera, 12.0; distance of the promontory from the narrowest part of the pubic arch, 9.0; transverse, diam., 12.8. Outlet: point of the sacrum to vertex of the pubic arch, 8.7; point of sacrum to the narrowest portion of pubic arch, 5.5; tubera ischii, 7.0; narrowest portion of pubic arch, 1.8 cm., etc.

With the ten cases published in Kilian's work, "De dilat. pelv. halist., Dissert. inaug., Bonnæ, 1859," the author has been able to find only 19 cases of dilatation of a pelvis deformed by mollities ossium, and birth of the child through the natural passage: Robert, Schmitz, Breslau 2, Winckel, sen., Feist, (forceps, living child, previous preparations for Cesarean section), Olshausen, Kezmarszky, Carl Braun; 8 times no instrument; 6 times the forceps; twice, perforation; once, version and extraction; once, extraction; once, symphyseotomy,—were employed to effect delivery: 11 children were still-born; of those born without artificial aid, 3 were living, 3 still-born.*

* See report of a 20th case, by Dr. Paul F. Munde, p. 36, vol. vi., No. 1, of this Journal, where Cesarean section was anticipated and prepared for, but a trial with the forceps resulted in the comparatively easy extraction of a living child.—[Eds.]

On Life and Death of the Fœtus. By Dr. Cohnstein, Berlin. (*Ibid.*, vol. iv., part 3, p. 547–549.)

Footing on the investigations of Schroeder and Winckel, that the temperature of the uterus is from 0.13°–0.19° Centigrade higher than that of the vagina, which difference is owing to the heat produced by the fœtus, Cohnstein argues correctly, that on the death of the child this increase of temperature will cease; first, because the child no longer produces heat, and second, because the uterus gives part of its own heat to the now foreign body within it. With pregnant women the temperature of the uterus exceeds that of the axilla by 0.1°–0.29°; during labor by 0.383°, in consequence of muscular exertion; in a woman in labor, however, whose child had been dead for 17 hours, the increase of temperature in the uterus was only 0.02° C. (Schroeder). Hence, if the fœtus in utero is dead, we shall find the temperature of the uterus no higher, or even a little lower, than that of the vagina; to prevent the influence of a possible post-mortem increase of temperature of the fœtus, we should, however, control the first thermometrical measurement by a second and third taken several hours later.

If the pregnant uterus has a higher temperature than other internal organs, owing to the presence of a fœtus, we shall also be able to diagnosticate pregnancy when other signs fail, as during the first three months. The careful introduction of a small thermometer, between the uterine wall and membranes, into the cavity of the uterus, has been shown by experiment to be productive of no evil effects (?). During labor the thermometer may be introduced as far as the presenting part will admit, or be placed into the mouth or anus in face- and breech-presentations.

Contribution to the Question of Sarcoma Uteri. By Dr. R. Chiroback, Vienna. (*Ibid.*, vol. iv., 3, p. 549–554.)

The only case of a primary pediculated myo-sarcoma of the uterus has been described by Winckel. Chroback reports a case in which, judging from the macroscopic and microscopic examination of the removed tumor, there was first an ordinary pediculated fibroid tumor of the uterus proceeding from the fundus, and a smaller fibroid in the cervix; at all events the microscopic examination of the pedicle, and the relatively slow primary increase of the tumors, lead to this conclusion. First, the largest and oldest tumor in the fundus underwent a

sarcomatous degeneration; after its removal the cervical tumor became similarly changed, probably by infection, and grew so rapidly that in the short space of five months it had attained the size of a fist and completely filled the vagina, although the sarcomatous proliferation had only here and there invaded the tumor. On the removal of the latter tumor, the spot where the original fibroid had been was found covered with soft, medullary, sarcomatous masses. The termination of the case is not known, as the patient did not return after the last operation.

THE LIQUOR AMNII AND ITS EXCESSIVE INCREASE. By DR. H. JUNGBLUTH, Aachen. (*Ibid.*, part. iv., 3, p. 554–557.)

THE final deductions from the author's investigations are: The theories of the origin of the liquor amnii from the placenta uterina (Scanzoni), and by transudation or exsudation from the surface of the fœtus (Scherer), have been refuted. The liquor amnii is undoubtedly exsuded by the capillary vessels, or vasa propria, normally found in the boundary-membrane of the fœtal placenta, which gradually obliterate during the last months of gestation, and must consequently be less obliterated during the 7th, 6th, 5th month, etc. In hydramnios they are found in greater abundance than when the liquor is normal in quantity. Other deviations in the placenta and fœtus were not found; physical experiments and chemical analysis fully correspond with the anatomical conditions, and only by connecting these results can we satisfactorily explain the genesis and the frequent quantitative variations of the liquor amnii.

INCARCERATED FIBROID TUMORS OF THE UTERUS. By PROFESSOR OTTO SPIEGELBERG, Breslau. (*Ibid.*, vol. v., part 1, p. 100–117.)

BY incarcerated fibroids Spiegelberg means those intra-parietal, not pediculated, fibro-myomata which grow from the uterus into, and occupy more or less of the cavity of, the pelvis, displace and compress its contents, obstruct the passage, and are almost wholly, if not entirely, immovable in any direction. These tumors may be intra-uterine and intra-vaginal, in which case the prognosis is relatively favorable; or subserous, principally cervical, retro-uterine or retro-vaginal, and then constitute a most dangerous affection, as they cannot be reached without opening the peritoneal cavity. In either case the tumor may

spring from the fundus, body, or cervix of the uterus; of the subserous tumors, those arising from the body rarely descend and become retrovaginal, and are mostly movable; cervical ante-uterine myomata have not as yet been described. Those tumors amenable to operative treatment, the intra-uterine and intra-vaginal, of which those arising from the cervix are more favorable because easier of access, often present considerable impediment to the introduction of the instrument for removal, owing to their size and origin, and occasionally have to be removed *gradatim*, *i.e.*, amputated. The danger of septic phlebitis, lymphangitis, and peritonitis and septicæmia is then very imminent. Spontaneous decomposition and septicæmia may also take place, generally proceeding from the lower portion of the tumor, which is most exposed to external influences and violence. The five cases related by Spiegelberg are briefly as follows:—

1. Fibro-myoma of the fundus, of enormous size, wedged deep into the vagina; partial excision from the vagina; laceration of the cervix uteri and its serous covering; gangrene of the incision; death from septicæmia and peritonitis three days after the operation. 2. Submucous myo-fibroma of the posterior cervical wall, adherent to the anterior vaginal wall; incarceration; only partial extirpation on account of the laceration of Douglas's fossa while drawing down the tumor with tenacula; fœto-purulent destruction of the remainder; death in 15 days after complete closure of the abdominal rent, from thrombosis of the veins of the leg and multiple pyæmia. 3. Incarcerated intra-parietal myoma of the posterior wall and fundus of the uterus; septic destruction of its apex; death from lymphangitis, peritonitis, and septicæmia. The first distinct symptoms of septic infection came on about 18 hours after the digital examination of the tumor by various students; Spiegelberg thinks that the infection proceeded from one of them. 4. Retro-uterine and retro-vaginal cervical myoma of enormous size; obstruction of the pelvic cavity in labor at term; Cesarean section; death. Spiegelberg has found 14 similar cases reported by Breslau and Magdelaine, in all of which the Cesarean section was fatal to the mother; 7 children were saved. 5. Retro-uterine incarcerated cervical myoma; unsuccessful attempts at reposition and puncture (only blood flowing) during labor; spontaneous birth of the child in breech-presentation after the rupture of the membranes, and consequent elevation of the tumor. That this happy event could have taken place only when the tumor was situated within the peritoneal cavity, and not when it was retro-vaginal or subserous, is evident.

On Inversion of the Uterus. By Prof. Otto Spiegelberg. (*Ibid.*, vol. iv., part 2, p. 350–362, and vol. v., p. 118–126.)

1. Inversion of a sarcomatous uterus, partly spontaneous, partly produced by traction on the tumor by the family physician; error of diagnosis, in supposing only a slight inversion and the rest of the tumor to be a polypus; under this erroneous impression removal of the tumor with the écraseur, death of the exceedingly anæmic woman thirty hours later. The specimen showed that the uterus had been divided a little above the cervix; the removed portion was 5½ centimeters long and 4 centimeters broad at the point of division.

2. Complete irreducible puerperal inversion of 18 months' duration; ineffectual attempts at reduction with the hand and colpeurynter, according to various methods, at intervals during one month; finally, the patient being extremely anæmic and debilitated and anxious to be relieved, a silk ligature was placed around the pedicle, to prevent hæmorrhage during the subsequent operation (not to produce adhesion of the two adjacent peritoneal surfaces); this produced vomiting and collapse, which ceased after the ligature was loosened a little; after 48 hours the uterus was removed at the boundary of cervix and corpus with the galvanic loop; the patient left her bed on the 15th day, and was soon dismissed well.—The point of inversion in this case was at about the middle of the collum uteri—generally it is at the internal os. The advantage of the galvanic loop is, besides arresting the hæmorrhage, the oblique direction in which the cervix was divided, thus when the stump was reinverted, aiding the secretions to flow into the vagina, and not into the peritoneal cavity. During menstruation the following observations were made on the inverted uterus: the organ more voluminous; the mucous membrane normal, but little injected, and covered with a clear, gelatinous secretion; the blood exuded slowly, as in parenchymatous hæmorrhage, and coagulated immediately; the largest portion did not come from the fundus, but from parts higher up (*i.e.*, the uterus being inverted, of course). An excised piece of mucous membrane showed an exceeding dilatation and distention of all the blood-vessels, small extravasations and much more numerous colorless corpuscles than had been found in a piece taken at an intermenstrual period; the epithelium found in the non-menstrual piece was also wanting. S. considers these appearances to support his opinion that the hæmorrhage called menstruation principally takes place *per diapedesin*, by transudation.

A Contribution to the Indications for Ovariotomy. By Dr. Wilh. Alexander Freund, Breslau. (*Beiträge zur Geburtshülfe und Gynäkologie*, ii. vol., pt. 1, p. 50–62. Berlin, 1872.)

Freund reports two cases of ovarian cysts, with extensive adhesions, which were both punctured several times, one patient refusing ovariotomy, in both of which purulent inflammation of the cysts and subacute peritonitis, with increase of temperature and pulse, night-sweats and rapid general debility (ichorrhæmia), ensued. As a last resort, starting from the obvious surgical principle that the suppurating and infectious tumor should be removed as rapidly as possible, Freund followed the example of Keith and Veit, and performed ovariotomy. In the worst of the two cases the peritoneal cavity contained a quantity of reddish, flocculent, serous fluid, which was continually exsuded from the inflamed peritonæum. In both cases, after the operation the temperature sank from 38°–40° C. down to 36.9° C. Case I. was threatened by dangerous symptoms of peritonitis and collapsus, but rallied, and both patients recovered perfectly.

Statistical Contributions to the Frequency of Menstruation during Nursing. By Dr. Louis Mayer, Berlin. (*Ibid.*, vol. ii., pt. 2, p. 136–142. 1873.)

Mayer found that in 1,200 labors, occurring in 395 women, many of whom were multiparæ (685 nursing their children and 515 not doing so), menstruation returned—

	After Delivery.	After Weaning.	During Nursing.
6 weeks in	52.82 per cent.	in 44 per cent.	in 24.63 per cent.
6 to 12 weeks in	18.83 " "	" 16 " "	" 20. 4 " "
12 weeks to 1 year in	4.85 " "	" 6 " "	" 31.84 " "

Before the sixth week it returned:

After weaning, in	34 per cent.
In not-nursing women, in	23.52 " "
In nursing women, in	14.2 " "

The result of these compilations is: 1. The appearance of menstruation during nursing is very common in our climate.

2. The most frequent period of its return coincides with the reappearance of the menses after weaning, and in not-nursing women after confinement.

3. The menstrual flow during nutrition is therefore not abnormal, partly on account of the coincidence mentioned under 2; partly because extensive practical experience shows us that neither mother nor child, under otherwise normal conditions, suffer any injury from the occurrence of menstruation during nursing.

DISEASES OF THE URINARY ORGANS INCIDENT TO PREGNANCY AND THE PUERPERAL STATE. By PROF. OLSHAUSEN, Halle. (*Trans. Obst. Soc. Berlin, Ibid.*, vol. ii., part 2.)

AFFECTIONS of the urinary organs are particularly common in the puerperal state; particularly vesical catarrh, occasionally pyelitis and nephritis. The catarrh of the bladder is generally caused by catheterization, during which act usually lochia are introduced into the bladder, or air enters through the catheter, or the latter mechanically irritates the mucous membrane. The reason why so many puerperæ suffer from retention of urine, and therefore require catheterization, is not the pressure and tumefaction of the sphincter vesicæ and urethra after severe and protracted labors, but generally a flexion of the urethra; this canal is stretched by the ascent of the uterus during pregnancy, and naturally becomes flexed when the uterus descends towards term, and after delivery, consequently we generally find the rapid and easy deliveries requiring the application of the catheter soon after the termination of the labor. The same occurrence may be observed after the puncture of ovarian cysts. Not only an unclean, but a perfectly new catheter may cause vesical catarrh. Many puerperæ hardly complain of the trouble; but an examination of the urine reveals the presence of pus. This catarrh generally disappears without or with only slight increase of temperature. Renal affections are much less common; the catarrhal form manifests itself by pain in the back, fever, fluctuating temperature—40° C. and more, rarely remaining so high, but lasting 8–14 days—albuminuria and casts, vesical catarrh, and generally end in recovery in one to two weeks. The interstitial purulent variety occasionally begins during pregnancy, the woman dies apparently from puerperal fever, and at the autopsy the kidneys are found filled with minute interstitial abscesses. This form is undoubtedly idiopathic, and not necessarily dependent on or consequent to primary catarrh of the kidneys. To avoid the application of the catheter, O. theoretically recommends pushing up the uterus from the vagina, and thus straightening the urethra.

ON THE PROGNOSIS OF OVARIAN TUMORS COMPLICATING PREGNANCY. By DR. A. WERNICH, Berlin. (*Ibid.*, vol. ii., pt. 2, p. 143–149.)

PLAYFAIR, Spencer Wells, Barnes, and others advise active interference whenever the diagnosis is definitely settled, and believe that manual reposition, or puncture of the ovarian cyst, or the induction of abortion or premature delivery, would

greatly improve the hitherto unfavorable prognosis of this complication. Braxton Hicks recommends the expectant treatment, and has seen a number of favorable instances. Wernich witnessed a case where a doubtful abdominal tumor, which had existed in an indolent manner before conception, was complicated with pregnancy. Shortly before delivery, violent pain was felt in the tumor, which had never caused pain or inconvenience before; rapid marasmus set in, and death occurred three weeks after delivery. At the autopsy, the tumor was found to be a medullary carcinoma of the ovary, partly decomposed. The history of the case makes it more than probable that the malignant change in the tumor took place only after conception. Cruveilhier, Rokitansky, Spiegelberg, Waldeyer, Virchow, Spencer Wells, Braxton Hicks himself, and others, have called attention to the connection of colloid disease of the ovary with carcinoma, and reported cases in which ovarian tumors rapidly increased during pregnancy, or where they were unexpectedly found, at the autopsy after delivery, to be of cancerous nature.

Martin, Winkel, Louis Mayer, and particularly Lücke, may be said to have demonstrated the fact that pregnancy exercises a positive deleterious influence on hitherto benign tumors, not only of the sexual organs, whereby their transformation into malignant growths is assisted or produced. The importance of this circumstance in making a prognosis of an ovarian tumor with pregnancy is self-evident, and, in the opinion of the author, in a measure justifies the otherwise extremely radical advice given by Dr. Alfred Wiltshire, of London, viz., to extirpate a multilocular ovarian tumor existing together with pregnancy as soon as the diagnosis is undoubted, if possible in the first months of gestation. Other remedial measures—puncture, induction of premature labor, or as a prophylactic the prohibition of sexual intercourse—are either useless or impracticable. Unfortunately there is no way of determining the cases in which the malignant degeneration is particularly liable to occur; it depends on a peculiar individual energy of the formative processes.

Spontaneous Reinversion of an Old Puerperal Inversion of the Uterus. By Prof. Otto Spiegelberg, Breslau. (*Archiv. für Gynäkologie*, vol. v., 1, p. 118–126.)

The patient was normally delivered of her twelfth child, August 21, 1872; complete inversion of the uterus was produced by undue traction on the child and placenta; the at-

tempted reposition did not succeed, and the woman refused any further trial; two months later, reduction was again ineffectually attempted. She was admitted to the clinic October 26th, and the usual condition of complete inversion ascertained by S. and his two assistants. No attempts at reduction were made, in order to keep the case for the beginning of the lectures, November 4. In consequence of an attack of diarrhœa, the patient was not presented to the class until November 14, during which time no examination or manipulation was made. On the latter day, to the astonishment of all present, the uterus was found completely reinverted, slightly retroverted, soft, 9 centimeters in length by the sound. The woman had not had the least consciousness of the fact; the womb remained in place, and the patient was dismissed a week later.

Besides this case there are only nine others recorded: Leroux, De la Barre, Baudelocque, Thatcher, C. D. Meigs (three cases), Rendu, and H. S. Shaw.

Spiegelberg's explanation, or rather the one given by Schatz in a communication to S., is as follows: During the horizontal position in bed, and in consequence of the diarrhœa, the uterus became less tumefied and more easily reducible; at the same time it ascended a little, and the round and broad ligaments naturally became shorter than they had been in the erect position; diarrhœa, with frequent tenesmus, supervened, whereby a strong pressure, mostly in the sitting posture, equal to 1 or 1½ meters of water, was exerted on and depressed the anterior and posterior vaginal walls; hereby the portio vaginalis was likewise pressed downwards, the round and broad ligaments became too short for such a degree of descent of the uterus, and kept the fundus uteri in nearly its former situation, and thus gradually the portio vaginalis was pushed over the fundus of the organ, fixed near the outlet of the pelvis. The total reinversion was then accomplished of its own accord or by further prolapsus.

On Tubercular Disease of the Female Genital Organs, and on the Influence of the Female Generative Period on the Development and Progress of Tuberculosis. By Prof. H. Lebert, Breslau. (*Ibid.*, vol. iv., 3, p. 457–470.)

The following final conclusions are drawn by the author:—

1. Tubercular disease of the internal genital organs of the female may be the chief localization of the affection, or be proportionally as much developed as simultaneous pulmonary phthisis, or exist only secondarily and in an inferior degree.

Sure signs of recognition of phthisis genitalium, even when it appears primarily, do not exist.

2. The disease described as tuberculosis of the cervix uteri does not in reality exist, or at least very rarely, the diseased glands with caseous epithelial contents about the os uteri having been taken for it.

3. The influence of pregnancy and the puerperal state on tubercular disease is exerted mostly between the ages of 20 and 30, especially from 25 to 30, and then from 30 to 40.

4. If in young girls the process is arrested, it will still be reawakened by subsequent marriage, when pregnancy takes place, both during this and the puerperal state, occasionally after the first, otherwise after a later pregnancy.

5. Exceptionally, formerly tuberculous women may remain in good health in spite of repeated pregnancies and puerperia; in some of these instances, however, the children are sickly, and a portion of them die at an early age.

6. Advanced phthisis generally prevents conception; early phases of tuberculosis do not do so, and usually allow the pregnancy to reach term.

7. Abortion, pregnancy, and puerperium, on an average in at least three-fourths of the cases, promote the development and rapid progress of pulmonary phthisis.

8. The puerperal state may not only confirm an existing predisposition, but relatively acts even worse than pregnancy, and more commonly still hastens the fatal termination. As an exception, however, a case of phthisis, which proceeded rapidly during pregnancy, may take a slower and more favorable course after delivery.

9. Neither pregnancy nor puerperium exert a determining influence on the localization or form of tubercular disease.

10. The evil influence of pregnancy and the puerperal state on phthisis is most evident in hereditary predisposition, which also materially favors the eruption of the disease during these periods.

11. Should parturient, tuberculous women pass favorably through the puerperal state, they will still have but little milk, and can only exceptionally nurse their children, which are generally very sickly, and very liable later to become scrofulous, and still later tuberculous.

PRACTICAL AND STATISTICAL CONTRIBUTIONS TO INTRAUTERINE THERAPEUTICS. By PROF. R. OLSHAUSEN, Halle. (*Ibid.*, vol. iv., 3, p. 471–482.)

THE experience of the author with intra-uterine pessaries has

been more favorable of late than during former years, as far as the production of evil results is concerned. Out of 297 cases of versions and flexions, 81 were treated with intra-uterine stems; to these may be added 5 cases in which there was neither flexion nor version. Of these 86 cases, 25 were women who had borne children, 55 were nulliparæ, and 6 unmarried nulliparæ. The results of the treatment were: the instruments excited peri- or para-metritic processes 7 times; they were removed on account of hæmorrhage or pain 10 times; they were well borne and continued so to the end of the treatment 66 times; they could not be kept in place, and were therefore finally not reapplied, 3 times.

Of the 66 cases in which the treatment was persevered in, in 17 only doubtful permanent results were obtained; in 18, the improvement was considerable and of long duration; in 15, of such duration as to admit the conclusion of a permanent cure. Of these 15 patients, 11 were cured of their sterility by the treatment. In 8 cases no improvement ensued, and in 8 other cases the results could not be ascertained because the patients did not remain under observation. The time during which the instruments were carried varied from 3 weeks to 22½ months, with one to three interruptions; in 15 cases they were worn from 6 to 22½ months.

Stem-pessaries are particularly useful in flexions, more so in ante- than in retro-flexions; the benefit in the latter is less likely to be permanent and their application is more dangerous; also in constriction of the uterine canal, and in certain cases of amenorrhœa; very rarely in versions. Their indications are the signs of obstruction in the uterine canal, with or without sterility or neuralgia, occasionally metrorrhagia; very lax uteri are little adapted to this treatment. Counter-indications are: all peri- and para-metric complications, sharp, not neuralgic, pains in or about the uterus, firm adhesions (lax adhesions are not necessarily a counter-indication, neither is menorrhagia or intra-uterine catarrh, with or without ulcera orificii externi).

Instruments of hard rubber, with a flat convex-concave plate, a stem of the thickness of a No. 6 catheter, 1.5–2 cm. shorter than the cavity of the uterus, with no support to hold them in place, are the most convenient, reliable, and least irritating. In anteflexions the button will rest against the posterior vaginal wall, and thus remain in place; in retroflexion it will more frequently slip out and necessitate the co-application of a lever-pessary, with or without a network of silk or some similar contrivance. Instruments too firmly fixed from the vagina are too irritating for continued use.

A slight uterine catarrh is the rule after the application, but is not troublesome, diminishes soon, and disappears spontaneously after the removal of the pessary. Increase of the menstrual flow for the first two or three periods is common; loss of blood between the regular periods is generally produced by dislocation of the pessary; uterine colic occasionally follows its introduction, but ceases after morphine, and the cases of hyperæsthesia often experience the most striking relief of their previous symptoms. Peri- and para-metritis, when they occur, generally come on during the first fortnight; spontaneous pain, sensitiveness on pressure during walking or on moving the uterus, call for the immediate removal of the instrument.

The instrument must be worn as long as it is well borne, and as it seems necessary for a cure (a year or more), or relief of the trouble (the same length of time, or according to the duration and intensity of the disorder).

Radical anatomical results—cure of the flexion—are rare; removal of the obstruction, of the dysmenorrhœa, hyperæsthesia, sacral and intercostal pain, hemicrania, and improvement of the general health, are very common, and are not attainable by any other form of treatment; hence the application of stem-pessaries in carefully selected cases, is invaluable, and ought not to be discarded any more than numerous surgical operations undertaken for the relief of affections not dangerous to life.

Cases of Disturbance of Motion in Connection with Pathological Conditions of the Female Sexual Organs. By Dr. Louis Mayer, Berlin. *Transact. Obstet. Soc., Berlin* (*Beiträge zur Geburtshülfe und Gynäkologie*, vol. ii., pt. 2).

1. *General Paroxysmal* (*reflex*) *Paralysis.*—The patient, a well-educated, respectable woman, 39 years of age, was chlorotic in her youth, married at 25, and was pregnant 9 times (3 miscarriages). In her 25th year she was suddenly seized with a peculiar nervous paroxysm, which she attributed to nervous excitement, and which was repeated at longer and shorter intervals for the next 14 years, appearing usually during the puerperal state, or when the patient had become much debilitated by hæmorrhage post-partum or hæmoptysis (to which she was much addicted, although the lungs, heart, liver, kidneys, etc., were not diseased), or when some external influence, fear, fright, excitement, or local irritation of the sexual organs by examinations, injections, painful micturition and defecation, had preceded the attack, which was occasionally ushered in by an aura, general pulsation, distress, flushing of both palms, dyspnœa,

etc. The symptoms were, first, a dull, dead sensation in the pelvis, which spread to the left leg, then to the right, and ascended to the thorax and rest of the body and the head; finally all the voluntary muscles of the body were paralyzed, respiration was slow and weak, complexion pale, mouth half open, eyelids half closed, pupils dilated but conscious to light, inability to move a muscle even on direct acute irritation; perfect consciousness and increased sensibility of the skin and the tongue were present during the attack, according to the subsequent account of the patient. Each attack lasted from five minutes to three-quarters of an hour; the return to voluntary motion was preceded by a flow of tears and a sudden closing of the mouth, motility proceeding from below upwards; pain in the brow and vertex, and general lassitude for 24 hours followed. One attack took place during the version of the child for placenta prævia. Five months after the seventh delivery (a miscarriage, with twins, in the fourth month), the uterus was found much enlarged, painful, immovably retroverted, the cervix eroded, bleeding; around the uterus various irregular adhesions were to be felt. Under appropriate treatment these pathological conditions, which had much annoyed and debilitated the patient, were gradually removed, and the patient restored to almost perfect health. Dr. M. considers the pathology of this case to be a general temporary paralysis of all the voluntary muscles of the body by means of reflex irritation from the diseased sexual organs to the medulla oblongata; not only the voluntary muscles of the trunk were paralyzed, but also the motor branches of the trigeminal, the oculo-motor, trochlear, abducens, hypoglossus, and pneumogastric nerves. The possibility of disease of the uro-genital system irritating centripetal nerves in an anæmic condition, and this irritation producing a reflex paralysis of the centrifugal nerves from the anæmic central organs, cannot be denied.

2. *Paresis of both the lower limbs, from pressure by the swollen retroverted and retroflected uterus.*

3. *Paresis of both lower limbs, of the flexors and rotators of the body, psoas major, iliacus internus and glutœi muscles, in consequence of retroposition of the uterus with rectangular anteflexion of the body and perimetritic exsudations in the cul-de-sac of Douglas.*

4. *Reflex paralysis of the muscles which raise and straighten the dorsal and lumbar portions of the spinal column, dependent on a hyperæmic condition of the genital organs, an enlarged anteverted and slightly anteflected, but not painful, uterus, with extensive catarrhal erosions of the cervix, and mode-*

rate sensitive infiltrations of the cellular tissue behind the womb.

In all of these cases various other remedies had been employed in vain by different physicians, and the cases seemed hopeless; the reposition of the uterus by means of the sound in all cases immediately enabled the patients to walk (which they had been totally unable to do since their illness), but as soon as the organ was allowed to resume its abnormal situation the paresis returned. The treatment of the dislocation by hard-rubber pessaries, and in case 3 by an intra-uterine stem, and appropriate remedies for the removal of the swelling of the uterus and the perimetritic exsudations, in course of time produced a perfect cure in case 1, and a very great improvement in cases 2 and 3. That the long-continued abnormal pressure on, and irritation of, the respective nerves may have caused a pathological alteration in them, by which entire recovery was retarded or prevented, is quite probable.

On Variola in the Female Sex. By Dr. Lothar Meyer, Berlin. (*Ibid.*, vol. ii., pt. 2, p. 187–198.)

Out of 3,221 cases of small-pox observed by M. from 1868–'72, in the Small-pox Hospital, the general mortality was: females 19.0 per cent., males 14.6 per cent.; the mortality from the hæmorrhagic form was: females 10.2 per cent., males 5.3 per cent., thus showing a greater absolute mortality among the females, and a still greater mortality from hæmorrhagic small-pox, to which they seemed particularly predisposed, as well as to subcutaneous hæmorrhage (purpura), during the prodromic stage, and to hæmorrhage from the sexual and other organs. The conclusions arrived at were: 1. In the course of small-pox the female sex is endangered in a high degree by certain peculiar conditions, which partly in every epidemic always (abortion and premature delivery and hæmorrhage after delivery), and partly only in certain epidemics (the predisposition to the hæmorrhagic variety, to abnormal menstrual and pseudo-menstrual hæmorrhage depending on oophoritis, perioophoritis, and hyperæmic tumefaction of the uterine mucous membrane), exert their full power and influence its mortality.

2. The difference in the mortality of the two sexes in variola is (with regard to certain complications in their turn influencing the male sex, as, for instance, delirium tremens) on the whole not very large, but rather vacillating in different epidemics and periods, now in favor of the one and now in favor of the other.

THE SHAPE OF THE BODY OF THE NEW-BORN INFANT. By DR. WILHELM PFANNKUCH, Marburg. (*Archiv für Gynäkologie*, vol. iv., part 2, p. 297–310.)

FROM the investigations of Hecker, we know that the weight and length of the children increases with the number of pregnancies. Mathews Duncan has demonstrated the direct dependence of this increase in weight and length of the infants on the age of the mother. Gassner's measurements show that the development of the child is influenced by the state of nutrition of the mother, and accurate statistical reports from various sources prove conclusively that new-born boys are as a rule heavier than new-born girls, a fact to which the greater danger of male births and the greater mortality of male infants is owing, and that it is particularly the greater size of the head of the male child which causes the dystocia. A point which seems to have been forgotten is the relation in which the head, the mechanically most important part, stands to the differently developed body; whether, in fact, boys and girls of equal weight differ in no other particular than by their sex. This point the author has tried to solve by measurements and weighings made of 714 new-born infants, and he has arrived at the following conclusions:

The size of the head and the length of the body grow in regular proportion to the increase of the child's weight, which latter, however, augments much more rapidly than the length or than the diameters of the head.

The heavier a child becomes the more the growth of the trunk and extremities preponderates, the head remains behind the volume of the rest of the body, the length increases much less rapidly than the weight, and consequently the growth in a transverse direction is principally the reason for this increase of weight. As a rule, the length of the body is determined by the development of the skeleton, the breadth and size by the accumulation of the muscular, and especially the adipose, tissue. The more a child becomes developed, the more in proportion to the head does the rest of the body, and still more do the muscular and adipose layers.

From a certain period the growth of the trunk and extremities and the lateral development of the body begin with progressive energy, which latter increase gradually ceases the nearer the child reaches the average weight at term, whereas the head and the length of the body still continue growing. If the child exceeds the average weight, this absolute increase

of the head and length diminishes, and the superior weight of the child is then owing only to its *embonpoint.*

The weight being equal, the heads and the length of male infants are still larger than those of the female children; consequently the body in the latter is proportionally more developed, and particularly so in the transverse direction, owing to the well-known greater deposit of adipose tissue under the skin and the resulting roundness of the limbs; whereby the advantage in size of head and length of body held by the boys is compensated for. A well-developed new-born girl certainly has a more stout under-set, a boy of the same development a more slender figure.

It is probable that the same influences which cause the greater average weight of the children of multiparæ also favor the formation of adipose tissue.

The head of a first-born child is generally elongated in the diagonal, materially shortened in the longitudinal, but somewhat broader in the transverse, diameter; that of a multiparous child is smaller and shorter in the diagonal, but proportionally longer in the longitudinal, diameter.

The male head, being relatively larger, offers more opposition during labor than the female head, and consequently shows stronger signs of the configurating power of the generative canal than the latter.

The general appearance of the body and the relation of its different parts to each other is certainly a much more correct basis for the determination of the stage of development, *i.e.*, age of the child, than the mere weight or length of its body.

CONGENITAL TUMOR OF THE SACRUM. By DR. STAUDE, Berlin. (*Beiträge zur Geburtshülfe und Gynäkologie. Transact. Obst. Soc.*, Berlin, vol. ii., 2, p. 108–114.)

THE author was called to a confinement in which the extraction of the body of the child, after the head was born, presented considerable difficulty; suspecting the cause of the trouble after a careful examination, S. turned the back of the child towards the sacrum and easily succeeded in removing it. The cause of the dystocia was found to be a tumor of the size of a child's head, situated at the end of the sacrum; during the extraction it had burst and discharged a clear, yellow fluid. A close investigation showed that the tumor was situated behind the rectum, pushing the sacrum and coccyx backwards; the iliac arteries and veins ran over the tumor, the ganglia of the sacral portion of the sympathetic nerve partly entered the mass and partly

ran over it, the sacralis media artery went into the tumor. The spinal canal was closed, and had no connection with the sacral tumor, which consisted of large and small cysts containing a yellow, limpid, albuminous fluid, the whole being covered with a fibrous, loosely-connected capsule. Under the microscope: fibrous cellular tissue, fusiform cells with ovoid nuclei, tubular cords filled with small, round or oval cells, bone- and cartilage-cells. The tumor undoubtedly was a cysto-sarcoma, its origin doubtful, but it certainly was neither hydrorachis nor a hernial sac.

There are three points of origin for these cysto-hygromata: the lower end of the meningeal sac, the osseous and cartilaginous termination of the spinal column, and Luschka's coccygeal gland (there is still some doubt as to the exact nature of this gland; Arnold believes it to be a convolute of vessels.) Virchow is inclined to consider these congenital cysto-sarcomata, containing as they do not only separate tissues but occasionally whole regions of the body (teratoid formations), as coming under the head of duplicate development; Förster describes them under the group of Pygopages (monstrosities in which twins are united by the sacrum and coccyx), and thinks it not impossible that they are of parasitic origin, a fœtal remnant inciting the pathological growth and then disappearing.

There is very frequently some difficulty in delivering a child with such a deformity, especially if the tumor be very firm and not ruptured during labor. Of 79 cases collected by Braune, 22—of 40 cases by Hohl, 18—were delivered with great difficulty. If the cause of the dystocia is suspected, the plan followed by Staude, viz., of turning the child so as to get the tumor into the hollow of the sacrum, and then extracting, will be found of service. Busch, Kilian, Siebold, and Hohl advise the same manipulation. If necessary, the tumor must be ruptured, even if the child be still alive.

INTERMITTENT FEVER AND ITS VARIOUS FORMS DURING CHILDHOOD. *Jahrbuch für Kinderheilkunde und Physische Erziehung.* VI. Jahrgang. 2 Heft. 1873. By PROF. BOHN, Königsberg. p. 115–138.

THE age of childhood is much more susceptible to the malarious poison than the adult age. The effects of the poison on the spinal nervous system, whereby the peculiar phenomena of intermittens are supposed to be produced, are more violent and rapid in the growing body, and the poison by its weight

alone appears to hover near the surface of the earth, and thus facilitates its inhalation by the child, and accounts for the great frequency of the disease in children. Whether the poison be of gaseous or vegetable nature, a sure sign of its being absorbed by the blood is the intra-uterine malarious infection of the fœtus, of which a few instances have become known. The children of mothers who had suffered from intermittent fever during pregnancy were born with large tumors of the spleen, with all the signs of malarial cachexia, the malarial coloring of the skin, dropsical effusions and hæmorrhagic ecchymoses in different organs, accumulations of pigment in the large abdominal viscera and the blood. Some of these children immediately after birth fell ill with intermittent fever, which seemed to be the continuation of the intra-uterine disease; others did not recover for years from their malarial cachexia. In a few cases the febrile paroxysms of the fœtus were discernible by its violent rolling and convulsive motions, the type of the fever coinciding as to day and hour with that of the mother, or alternating. How long a pregnant woman must be affected with intermittent fever to cause the infection of the child is uncertain. Regular intermittent fever was observed in 465 children from the first year (21 cases) to the fifteenth; the largest number observed was 69 cases in the second year, and up to the seventh year. Sex exerts no influence on the liability to the disease. The common type was the quotidian, then tertian and quartan; most attacks came on in the hours between noon and midnight, perhaps owing to the cool night-air and the evening-fogs. Relapses were extremely common; from the first to the tenth year in 64 per cent. (Griesinger). The disease follows the infection very rapidly; the premonitory symptoms very closely resemble those of gastric or typhoid fever, and their real nature may be ascertained only by finding an enlarged spleen and a temperature of 40° C. or more on the first day, whereas in typhoid fever these symptoms would be more tardy in appearing.

The abortive variety, where two or three quotidian or tertian attacks appear without being repeated, is not uncommon in children.

Characteristic regular attacks are exceptional in children; the paroxysms are incomplete, fragmentary, often difficult to recognize; the cold stage may be entirely wanting or very slight; generally it is replaced by drowsiness, slight tremors of the extremities, spasmodic movements of the eyelids (in children at the breast), pallid countenance, and a sensation of cold, etc. The fever is very variable and fluctuating, sometimes the tem-

perature of only one-half of the body being increased, and the third or perspiratory stage is neither so intense nor so frequent with children as with adults.

A constant symptom is the enlargement of the spleen, sometimes but slight, but always present, and, if rapid, accompanied by acute radiating pain during the hot stage. A gastro-intestinal catarrh is so common a companion of intermittent fever in children, that it may be considered a valuable diagnostic sign, particularly if the dejections occur most frequently near or after the time of the chill, and are streaked with blood. This occasionally dangerous symptom is caused by the irritation of the spinal cord through the malarial poison, and the consequent hyperæmia of the intestine. Jaundice and bronchial catarrh are occasional concomitant affections.

Children are much more rapidly, generally, and durably affected by malaria than adults. A few chills suffice to produce the well-known signs of the disease: atrophy of the panniculus adiposus, and the pallid color of the skin. All the symptoms of anæmia, œdematous swelling of the hands, feet and face, later ascites and hydrothorax, systolic murmurs in the heart and large cervical veins; enlargement of the spleen, 22–24 ctm. in length, 6–11 ctm. in breadth; chronic intestinal catarrh, petechiæ and purpura, are the common symptoms of malarial cachexia. Gangrene of the external female genital organs occasionally occurs in extreme cases. The youngest children with intermittens observed by Bohn (or indeed any one as yet) were 10, 14, and 20 days old; contrary to Bouchut, Bohn says that two-thirds of his twenty-one cases under one year of age presented the usual signs of intermittent fever in older children; gastro-intestinal catarrh was generally present.

In accordance with the greater susceptibility of the youthful system, the irregular varieties of intermittent fever were more frequently met with in early childhood, and manifested themselves chiefly in derangements of the nervous system, or by congestive-inflammatory processes. Of the former class, which are caused by a particularly violent malarial infection and the convulsibility incident to childhood, are sopor, clonic and tonic spasms, neuralgia, vertigo, and psychical disturbances; the latter, caused by vasomotor influence from the spinal cord, are almost solely catarrh of the intestinal and bronchial mucous membrane.

1. *Intermittens soporosa*, characterized by sudden collapse, from which the mostly very young children can hardly be roused; hot baths, quinine, wine, musk, camphor, are the best remedies.

2. *I. convulsiva*, caused in old cases by melanæmia and accumulation of pigment in the brain, in fresh cases by the liability of most children to convulsions from any slight febrile condition, or at any time by the toxical influence of the malarial poison. In one case, percussion of the swollen spleen caused violent convulsions. Twice, periodical torticollis, spasmodic contraction of the scaleni and sterno-cleido-mastoid muscles accompanied the tertiary chills, and was cured by quinine.

3. *I. neuralgica* is less common in children, like all affections of the sensitive fibres of the cerebro-spinal system; B. saw only 12 cases; 9 in the region of the trifacial nerve in children from 1½–12 years, once sciatica, once cardialgia and once in the branches of the hæmorrhoidal nerves.

4. *I. vertiginosa* is very common: the vertigo is a valuable diagnostic symptom only in connection with other less definite signs of infection.

5. *I. psychopathica*, characterized by mania, nervous excitement, melancholy or extreme fear during the attack, of which all recollection is lost.

6. *Intermittens characterized chiefly by bloody diarrhœa.* There is no pain and tenesmus, consequently it is not dysentery; the passages coincide with the time of the chill, generally quotidian, and are controlled only by quinine.

7. *Intermittens with croupy and laryngeal symptoms*, and

8. *I. with pneumonia*, *I. pneumonica*, are uncommon, in so far as the croup and the pneumonia appear as sudden complications of the intermittent, caused perhaps by the repeated determination of blood to the pulmonary system. If they come on gradually, only as the sequel to an already existing catarrh, they are less dangerous and more common, and present an intermittent or remittent character.

The chief remedy for all these forms of intermittent fever was quinine, generally the tannate, in doses of 12 to 60 centigrammes (2–12 grs.) or more, every two hours or oftener.

THE UNITY OF VARIOLA AND VARICELLA. By DR. KASSOWITZ, Vienna. (*Ibid.*, p. 160–175.)

THE majority of pædiatricians at present incline towards the theory of duality, while most chiefs of clinics and dermatologists still adhere to the unity of the two diseases in question. The arguments of the dualists in favor of the specific nature of varicella (with well-defined vesicles with clear, translucent contents, desiccating in from three to five days) are: 1. *The impossibility of producing an eruption by*

vaccination with the vesicular fluid of varicella. Steiner, in Prague, Willan, and others succeeded in producing a general eruption by vaccination; the failure of others is owing, perhaps, to the fact that they vaccinated with the clear fluid instead of waiting till the contents of the vesicles became opaque, when they are more infectious, as is also known to be the case in variola vera. Negative results from vaccination prove nothing either way.

2. *Varicella occurs in children who have never been vaccinated, and a previous attack of varicella affords no immunity against vaccination; a child may even have varicella and vaccine-pustules at the same time.*—But, variola and vaccine-pustules may exist contemporaneously (Pringle, in Wilson's Journal., ii., 8, enumerates 169 cases), the variola having a milder nature, and the course of vaccinia is also influenced and retarded by intercurrent or existing varicella; herefrom we may deduct a mutual relationship of variola vera and varicella with vaccinia. The fact that varicella occurs in non-vaccinated children only proves that a disease need not always affect a person in its severest form, and that, while one child is taken with variola vera, another catches its weakest variety, varicella.

3. *Varicella and variola occasionally appear in this order in the same person at different intervals.*—All exanthemata are liable to reappear a second time under peculiarly favorable conditions; variola has occurred two and three times in the same individual; an immunity of only a few years after vaccination is quite common.

4. *Epidemics of variola and varicella run their course independently of each other.*—Varicella occurs before, during, and after an epidemic of variola, and also sporadically, *i.e.*, varicella, like most zymotic diseases, exists as the lightest form of small-pox at all times in large cities, and increases at times under favorable circumstances to the height of an epidemic.

5. *The almost exclusive occurrence of the vesicular variety in childhood.*—Very true, but to be explained by the tenderer and thinner skin of children, which permits of the more rapid production and desiccation of the vesicles; where the skin is thick, as on the soles of the feet, the contents of the vesicles of varicella become purulent, and the course of the eruption is retarded.

6. *The difference in the course, temperature, and eruption of the two varieties.*—These vary exceedingly; varicella may be accompanied by high fever, and variola, on the other hand, by almost no increase of temperature; varicella not unfrequently has a prodromic fever as well as variola; the eruption in

successive crops, said to be characteristic of varicella, is not unfrequently seen in variola, where the eruption is sometimes 6–8 days in appearing, and the last crops are not so much noticed among those of older date. There are so many different degrees and varieties of other exanthemata, why should variola vera and varicella not be the two extreme degrees of small-pox?

Both affections have in common the prodromic erythema; the similarity in the anatomical distribution of the exanthema over the cutaneous surface, which would be most singular in two distinct diseases; the occurrence on mucous membranes; the analogous cause, differing only in duration of each separate crop of the eruption, with formation of nodules, fluid exsudation, desiccation, decrustation, and cicatrization (which latter is allowed for the vesicular variety even by the adversaries of unity); the average similarity in size; the analogy in the structure of the efflorescence, as far as the cellular arrangement is concerned, which is shown in both cases when a tense vesicle is punctured and only a small portion of the contents exudes, while the remainder of the vesicle continues filled; the retarding influence exerted by both on the development of vaccinia. Farther, in any severe case of varicella some vesicles will be found, the contents of which have become purulent, which show a depression in the centre, desiccate slowly, perhaps in two to three weeks, and leave a deep, concave scar. Hebra asserts that in confluent small-pox vesicles may be observed at any period of the eruption. Then the undoubted cases of infection of variola from varicella, and the reverse, reported by Thomson, Hebra, Rayer, Lebert, the author, and others.

Gerhardt says that there is a disease exceedingly like varicella, which is caused occasionally, in vaccinated and non-vaccinated persons, by undoubted infection from variola vera, and which will again produce true small-pox. Would it not be better to say, from varicella true small-pox may occasionally arise, and vice versâ?

The conclusion arrived at by Kassowitz is: The result of the infection, whether the infected person takes varicella or variola vera, depends mainly, on the one hand, on the greater or lesser predisposition of that person to the disease, and, on the other hand, on the greater or lesser intensity of the morbific agent, the contagion. A person who has never had variola or varicella before, will, in ordinary cases, get varicella from varicella, in extraordinary instances, however, variola. A previous infection by variola affords the best protection against a subsequent infection,

a less protection is afforded by vaccinia, and a still less by the lightest form of the disease, varicella. Varicella is no substitute for vaccinia, and children with varicella, if brought into the small-pox wards of a hospital, run the danger of having their varicella intensified by the intensification of the poison, and of getting true small-pox. Finally, varicella is a variety of small-pox, considerably weakened in every particular, and, besides, modified as to the anatomical construction and the cause of the eruption by the constitution of the infantile skin; it gives but a very slight immunity against vaccinia and variola, but, besides all other analogies, by the possibility of producing variola through infection and of being produced by the latter, it unquestionably shows its intimate relation with that disease.

On Constipation in Children. By Dr. A. Monti. (*Wiener Med. Presse*, No. 26–28. *Jahrbuch für Kinderheilkunde.*)

Constipation in children is not rare, particularly the first degree in children at the breast, *i.e.*, one passage in 24 hours. The fæces become hard, friable, lighter, mixed with mucus or blood; defecation is difficult, painful, often preceded by colic; the abdomen is tense and bloated.

The consequences are: Dyspepsia, anorexia, insomnia, intercurrent diarrhœa, in predisposed children of rachitic, hydro- and micro-cephalic diatheses, convulsions, herniæ, retention of urine. The causes are:

1. Mechanical, congenital malformations of the intestine or acquired impediments, incarcerated herniæ, invaginations, fissura ani, constriction of the intestine, etc.

2. Want of sufficient nutriment, too strong dilution of the milk in artificial nutrition.

3. Defective nutrition, superabundance of casein in the milk, too frequent nursing or feeding the child, too little fat in the milk, particularly the habit of giving children under one year solid food instead of the fluid nourishment alone suitable to their age; Liebig's soup is apt to produce constipation.

4. Defective peristaltic motion of the intestine in rachitic children, on account of atrophy or partial paralysis of the muscular coats of the bowel, particularly after protracted diarrhœa.

5. Diminution of the intestinal secretion in anæmic children, diseases of the brain and spinal cord, the use of astringents, opium, etc., in larger children want of exercise.

The treatment consists, first, in the removal of the cause. To empty the bowel, if necessary, laxatives (mannit. pulv.

℥ ij., aq. fervid., ℥ ij., a tablespoonful every two hours until it acts; rheum, with or without magnesia, or pulv. rad. rhei, magnes. carb., āā ʒ ss., electuar. anis, ʒ j. M. The point of a knife full—Prof. Mayr; or the panis laxans, inf. sennæ e. ʒ ij. ad ℥ ij. Syr. spin. cervinæ in table- or tea-spoonful doses. If the milk contains too much casein Monti uses whey for children under two months, 2 to 3 tablespoonfuls a day; for older children ¼ to ½ pint; in obstinate cases nursing by a younger wet-nurse; the addition of a solution of bicarbonate of soda (half a drachm to four ounces, a tablespoonful to each new bottle of milk), to the milk in artificial nutrition is useful. Liebig's soup should be diluted with water if it constipates, or milk with veal-broth substituted for it. Occasionally mixed diet is of service (breast, beef-tea, spring-water on an empty stomach); rachitic children should have cod-liver oil or a mixture (Ol. jecor. aselli, ʒ ij., pulv. gumm. arab., aq. font. q. s., ut f. mixt., colat., ℥ ij.; 2 to 3 tablespoonfuls a day); cool bathing, washing, enemata; larger children, laxative mineral waters, Friedrichshall, Kreuzbrunnen, etc.

NEPHRITIS DIPHTHERITICA. By Dr. L. LITZERICH. (*Virchow's Archiv*, 55 *Bd. Ibid.*)

THE investigations of L. on the fungous origin of diphtheria (Die Diphtherie, eine Monographie, etc., 1872) are known, and have been published from time to time in the *Berliner med. Wochenschrift* and *Virchow's Archiv*. A new experiment is the following: If filtering-paper, through which urine from diphtheritic children has been filtrated, is washed with tepid water, dried, and laid on the mucous membrane of the cheek of a rabbit, 26 to 36 hours later the same fragments of fungi will be found in the urine, and later still the specific diphtheritic nephritis. The fungus entered the system at the spot where the filtering-paper was applied; the mucous membrane shows nothing but a slight milky discoloration.

At the autopsy of a boy 2½ years of age, who died of pharyngeal diphtheria, and who had suffered from retention of the urine fifty hours before death, the kidneys were found much enlarged, the capsule tense and friable; on incision the cortical substance could not be distinguished from the medullary; it was of a dirty-yellow, shiny color; in the pyramids near the papillæ reddish striæ. On microscopical examination, the canaliculi recti and contorti were found filled with fungous masses in various degrees, the epithelium in parts entirely destroyed or filled with granules and enlarged to double its nor-

mal size. On picking the specimens to pieces, a fine network of fungous filaments and spores was found, of various size and development. In the corpora Malpighiana there were black masses filled with bright round bodies, which could easily be distinguished as spores; in the pyramids the spores were accumulated in great quantity; in some of the tubuli recti the epithelium was well preserved, others were filled with translucent, cylindrical bodies (hyaline cylinders), etc. The fungous spores were to be found not only in the arterial vessels, but also in the interstices of the tissue between the uriniferous tubules, where they may have arrived by way of the lymphatic spaces (*Saftkanälchen*). The fungi reach the circulation by means of the lymphatic vessels, and their transmigration into the renal epithelium and tubuli appears to be particularly favored in some manner or other. The hyaline cylinders are formed in those tubuli where the epithelium has remained whole, and violent congestion and croupous exsudation have taken place. The paralysis in diphtheria is caused by the destruction of the intramuscular nerve-fibres by the fungi.

The treatment consists chiefly in the chemical and mechanical destruction of the fungi, and their removal from the system by diuretics, warm baths, fomentations, etc.

On Diphtheria. By Dr. Senator. (*Virchow's Archiv*, 56 *Bd. Ibid.*)

S. does not believe in the specific nature of the fungus which is certainly found in diphtheria, which generally is the vegetable parasite known as leptothrix buccalis, and which thrives very well on diphtheritic ground and may spread the poison of diphtheria by entering the circulation and carrying the poison all over the system. By itself it does not produce diphtheria. The causes given by S. for his non-belief in the fungus as the specific cause of diphtheria are: 1. The same bodies found in diphtheria are also seen in other inflammatory processes in the cavity of the mouth and pharynx, and if put into the urine undergo the same changes into chains and necklaces; 2. Muscular fibre retained for several hours between the teeth, presents the same appearance as the diphtheritic muscular fibres described by Oertel, minus the increase of nuclei; 3. In freshly-expectorated mucus and fragments of tissue of the air-passages the fungous elements are either entirely wanting or very scarce; 4. On examining the real diphtheritic membranes in the throat, we find fungi only in the superficial layers, but less and less as we leave the surface.

Degeneration of epithelium with leptothrix buccalis may eventually produce contagious diphtheria, by causing decomposition of the tissues, and thus forming a source of contagion. Paralysis diphtheritica, according to S., is a neuritis migrans. S. does not approve of strong irritant applications, but recommends mild gargles or swabbing with chlorate or permanganate of potash, or other alkalis, and antiphlogistic measures.

SCROFULOSIS AND ITS LOCAL TREATMENT AS A PROPHYLACTIC AGAINST TUBERCULAR DISEASE. By PROF. HUETER. (*Volkmann's Sammlung Klin. Vorträge*, No. 49. 1872. *Ibid.*)

WE are surrounded by various phlogogonous (producing inflammation) influences, against which we are protected by the epidermic or epithelial covering of our body; unfortunately this coating has defects, pores, through which phlogogonous substances can enter. Certain individuals, who are called irritable or vulnerable, possess this property in a marked degree, and of this class are scrofulous persons especially, in whom an inflammation, once started, has a particular tendency to spread and last to an unusual extent.

The beginning of the pores are the superficial terminations of the system of sap-canals (*Saftkanalsystem*) which in children possesses numerous wide ducts filled with nutrient fluid, whence "pastous constitutions" are chiefly met with in childhood; or, in other words, scrofula is a disease of childhood.

The sap-canals continue into the lymphatic ducts, and thus the phlogogonous elements reach the lymphatic glands; lymphadenitis is therefore one of the first consequences of scrofula.

The lymphatic glands of scrofulous persons thus become inflamed, but only undergo a hyperplastic, occasionally caseous, metamorphosis, rarely suppurating.

Scrofula therefore begins with local inflammation, which is situated beyond the subsequently to be infected lymphatic glands, and finally culminates in the caseous metamorphosis of these glands; thus the scrofulous inflammatory conditions of the skin and mucous membranes (eczema, conjunctivitis, rhinitis, pharyngitis, etc.) are reinstated to their 'former prominent position.'

Caseous infiltrations *may* heal by absorption, but only under the same rare conditions as an abscess, when unusual means of communication with the abscess or caseous deposit are developed.

This is generally not the case, but the caseous deposit, as a rule, after long existence and under unknown conditions, be-

comes the seat of subacute inflammation, which, in most cases, leads to the elimination of the caseous matter and cure, but frequently only to the formation of fistulous canals of very long duration.

The development of abscesses in caseous infiltrations is not unfrequently accompanied by serious general symptoms, which herald the developing tubercular disease; sometimes this occurs before subacute suppuration has set in. According to the present state of the investigations, we can in all probability conclude that the minute detritus of the caseous infiltrations leads to embolisms in the capillaries and the sap-canals, which give rise to the formation of miliary tubercles. The special predisposition of scrofulous persons to embolism of the sap-canals is caused by the excessive dimensions of the latter. The possibility of this infection of the system by the detritus of caseous deposits points out to us a new therapeutical indication, besides the usual internal anti-scrofulous treatment, viz., to remove the cause of this infection, the caseous lymphatic glands, with the knife, wherever and as soon as possible, and to destroy the first link of the chain, the primary local inflammations which produce lymphadenitis, with early and energetic measures.

The extirpation of the hyperplastic and caseous lymphatic glands is generally an operation of no danger, and is, under all circumstances — particularly when the caseous infiltration changes to suppuration—a most valuable prophylactic against tubercular disease.

Besides the caseous deposits in the lymphatic glands, the caseous epididymitis and orchitis, the caseous suppuration in the ischio-rectal cavity, of the synovial membrane of joints, of the medullary canal of bones, etc., are of equal importance.

A number of deposits in the internal organs, inaccessible to surgical interference, will, nevertheless, still remain as abundant sources of tuberculosis.

THE INJECTION OF PERCHLORIDE OF IRON IN PUERPERAL HEMORRHAGE. By A. B. STEELE, L.K.Q.C.P., Physician to the Lying-in Hospital; Lecturer on Obstetric Medicine at the Royal Infirmary School of Medicine, Liverpool. (*Obstetrical Journal of Great Britain and Ireland*, June, 1873.)

WHEN the injection of a powerful styptic into the uterus, as a means of controlling post-partum hemorrhage, was first suggested in the pages of the *British Medical Journal*, in 1869,*

* *Brit. Med. Jour.*, 1869, vol. i. pp. 327, 388, 504; vol. ii. p. 102.

I ventured to express my fear that the somewhat unqualified advocacy of this novel treatment was calculated "to mislead the inexperienced practitioner, and to divert his attention from those measures which are founded upon physiological data, and upon the accumulated experience of obstetricians since the time of William Hunter;" and further "that the only efficient means of controlling uterine hemorrhage is to secure uterine contraction; and that local styptics, so useful in some forms of non-uterine hemorrhage, are, as a general rule, inapplicable to uterine hemorrhage."

Dr. Barnes at that time stated his belief that the intra-uterine injection of perchloride of iron to arrest post-partum hemorrhage was "one of the most valuable improvements ever introduced into the practice of midwifery." An expression of opinion so strong, and from so high an authority, impressed me strongly, in spite of my theoretical objections, and I finally resolved to put the plan to the test of practical experience on the first opportunity.

As I am now in a position to speak from bedside observation, and finding from recent discussions that the treatment in question is still *sub judice*, I feel bound to contribute my quota to the settlement of so important a question in obstetric practice.

A circumstance which more immediately determined my adoption of this mode of treatment was the accident of my listening to a graphic description of a case by Dr. Williams, of Wrexham, given at a meeting of the North Wales Branch of the British Medical Association, held last summer at Bala, at which I had the good fortune to be present. A lady who had been attended by Dr. Williams in several labors invariably suffered from post-partum hemorrhage to a degree which caused much anxiety for her immediate safety, and rendered each approaching confinement a source of dread to herself and her friends. On the occasion of her last confinement, Dr. Williams determined to try the effect of the iron injection as recommended by Dr. Barnes, and accordingly this was done immediately after the expulsion of the placenta and before hemorrhage had commenced. No sooner was the operation completed than the patient, notwithstanding her usual dread of impending hemorrhage, at once exclaimed, "I am better now, and I know I shall have no bleeding this time;" and such proved to be the case, and her recovery was excellent. This case impressed me so strongly that I resolved to adopt the plan on the first suitable occasion, which shortly after presented itself in the following case:—

A patient of my own, nearly forty years of age, of tender, delicate frame, deficient muscular tone and energy, large dilated veins, and the subject of hemorrhoids, which in the latter months of pregnancy became so aggravated as to necessitate their removal by the clamp and cautery, was taken in labor for the second time. Her first confinement, a year previous, was protracted and difficult from uterine and general inertia, rendering forceps delivery necessary, extraction not being effected without long and forcible traction; hemorrhage ensued, which was controlled by the ordinary measures, but a subsequent draining of blood continued, which, although not excessive in quantity, was nevertheless a source of much anxiety in her already exhausted condition. She, however, ultimately recovered after a tedious and troublesome puerperal period. The child was born alive, but died in a few weeks from diarrhœa and atrophy consequent upon loss of breast milk and general debility.

The second labor was almost as difficult and protracted as the first; she was delivered after long traction with the forceps of a fine living female child. Hemorrhage again set in immediately after the completion of labor. I at once injected a solution of iron, one part of liq. ferri perchloridi fortior. to four of water, which in a few minutes completely controlled all bleeding, and caused firm general contraction of the uterus, contrasting favorably with the imperfect and unreliable contraction so common under these circumstances; and which on the former occasion rendered her condition critical for a considerable time. Her recovery, although complicated by constitutional delicacy and feebleness, was nevertheless much more favorable than in her first confinement, and the child lived and thrived well.

The following case, which occurred shortly after that just related, is even more specially illustrative of the value of the iron injection, not only in puerperal hemorrhage, but also in the hemorrhages of abortion.

A patient about twenty-five years of age, a fair, delicate-looking woman, the mother of one child, first consulted me for a constant, and at times profuse loss of blood, which had lasted for many weeks, after an abortion at the fourth month. I opened up the cervix with tents, and swabbed the uterine cavity freely with the undiluted liq. ferri perch. fortior.; after two applications all bleeding ceased, and in a short time she was quite well. About a year later I was called to see her in consultation with her medical attendant, in consequence of post-partum hemorrhage of a formidable character, which had come

on about an hour after the completion of labor, and had already caused great depression, approaching to collapse. The bleeding was promptly checked by compression, cold cloths, and the other ordinary means, but reaction was slow in taking place; the patient remained for some hours in a feeble, excited state, with delirium and other symptoms of constitutional disturbance, which required close watching for two or three days. She recovered slowly but completely. In about twelve months after this she was again taken in labor, and I saw her as soon as the pains set in. Her labor was easy and somewhat rapid. Every precaution in anticipation of flooding was adopted: a full dose of ergot just before the expulsion of the head, careful compression of uterus with the hand throughout and subsequent to the expulsive stage, compress and binder, and so on. For a short time after delivery all went on well, and I left the room, but was soon recalled by the nurse, as the patient told her "there was a good deal coming away." I at once recognized the effects of hemorrhage in her pallid lips and faint condition, and found a large quantity of coagula in the bed and in the vagina, from whence fluid blood was still flowing. The uterus, although not entirely flaccid, was doughy, and did not readily respond to compression. I hastily prepared a strong solution of the solid perchloride (which fortunately I had brought with me), and having cleared the uterus and vagina from clots, during which process I could feel the warm stream still flowing, I threw up about a quart of the fluid, which at once checked the bleeding, and in a few minutes the uterus, and especially the os, was firmly contracted. No further bleeding nor any untoward symptoms followed, and the patient made a better and quicker recovery than she had ever done on former occasions. In each of these cases the patients themselves appeared to appreciate the beneficial effects of the iron injection, and to acquire a feeling of confidence in its power to control the bleeding in a few minutes after its application; a sense of security which, while encouraging to the accoucheur, is not without its beneficial emotional effect upon the patient. I have used the iron in a few other instances, not so typical nor so interesting as to deserve record here; but in all the result has been satisfactory, and unattended by any appreciable after-consequences of a disagreeable nature.

I therefore assume from my own experience as well as from that of others that this mode of treating puerperal hemorrhage is both safe and reliable, and under certain circumstances not only justifiable but strongly indicated as one of the most effectual means of rescuing a patient from imminent death.

I am disposed to believe that the action of the iron injection depends not so much upon its direct styptic or hemostatic effect, as upon its influence as a reflex excitor of the incident nerves of the walls of the uterus, and also by directly arousing the peristaltic action of that organ, upon which the more powerful muscular actions are as it were based.

One class of cases to which the use of this powerful astringent appears specially adapted are those not uncommon and most troublesome forms of flooding which might be called recurring hemorrhage, where the uterus alternately contracts and relaxes, and where it is difficult to determine when the patient can be pronounced free from risk of further bleeding. Instead of being obliged to grasp the uterus for an hour or two, and feeling afraid to leave the patient perhaps for many hours, the use of the iron at once removes all doubt and difficulty by inducing firm and permanent contraction.

With regard to the objections which have been raised to the use of the iron injection in flooding, I am not yet convinced that these are to be conceded as sufficiently established by observation to give them weight against the proved safety and efficacy of the treatment when judiciously applied. It has been said that the perchloride acts so powerfully on the walls of the uterus as to leave a layer of dead tissue of some thickness, which is liable to give rise to septicæmia. I am not aware that this has been proved by actual observation: it appears to me improbable when the antiseptic property of the solution is considered.

The few reported fatal cases in which the injection had been employed, are not to my mind conclusive evidence of its supposed ill effects.

Deaths from septicæmia and other puerperal complications following profuse flooding were sufficiently frequent before the treatment in question was adopted to render it at least doubtful whether the mortality has not been due to other causes than the use of the injection. Granting, however, that in this as in some other powerful remedies employed in circumstances of great and immediate danger to life, there may be a certain possible contingent risk of subsequent mischief, it then becomes a question whether we shall allow a patient to bleed to death before our eyes rather than employ means which we feel confident will recue her from impending death, although they may subject her to possible future risk.

The mode of applying the remedy has been so fully and accurately described by Dr. Barnes as to render it unnecessary to add anything on that point. It may be well, however, to

repeat one condition insisted upon by him, which if neglected will probably cause failure. Before injecting the fluid into the uterus, all coagula or remaining portions of placenta structure must be carefully removed.

A woman was brought into the hospital literally bleeding to death after an abortion at the fourth month. I opened up the cervix with tents and freely swabbed (I never inject the non-pregnant or immature parturient uterus) out the cavity with the undiluted liq. ferri perchloridi, but the bleeding, so far from ceasing, appeared to flow more freely than ever. As a last resource I introduced a finger up to the fundus and with infinite difficulty scraped off a minute particle of placenta structure, after which the hemorrhage ceased and the patient slowly but completely recovered.

REVIEWS AND NOTICES OF BOOKS.

THE PRACTICE OF SURGERY. By THOMAS BRYANT, F.R.C.S., Surgeon to Guy's Hospital. With 507 Illustrations. Philadelphia: Henry C. Lea, 1873. pp. 984.

THIS is, as the preface states, an entirely new book, and contains in a moderately condensed form all the surgical information necessary to a general practitioner. It is written in a spirit consistent with the present improved standard of medical and surgical science. The valuable and extensive records and specimens of Guy's Hospital have been largely used in its preparation, and the numerous and excellent illustrations of specimens, manipulations, and instruments greatly facilitate the comprehension of the various topics. There is, in fact, a little of everything (and not always of surgery alone) in the book. The type and general appearance of the work is excellent, and we can readily recommend it to those in want of a modern text-book of surgical practice.

DIE ENTSTEHUNG DER STIRN- UND GESICHTSLAGEN. Von Dr. MED. FRIEDRICH AHLFELD. Mit 15 Holzschnitten und 5 photolithographischen Tafeln. Leipzig, 1873. Verlag von Friedr. Wilh. Grunow. pp. 128.

IN order to correct the impression that frontal presentations are very uncommon and unfavorable, Ahlfeld collected thirty cases, besides fifty of the so closely related face-presentations, from the clinical reports in Leipzig, and made a careful analysis of their ætiology, quoting from and comparing the statements of Hecker, Winckel, Freund, and other prominent authors on this subject. After an elaborate discussion of the various causal influences of these presentations, conducted with the customary thoroughness of the author, omitting all mere theory or speculation, Ahlfeld sums up the following conclusions as the result of his investigations:—

1. The development of frontal and face-presentations does not depend on *one* ætiological point, but in most cases *several* causes aid in forming these presentations.

Exceptions are considerable enlargement or tumors of the

upper portion of the thorax and the neck, as also hemicephalus, which are sufficient alone to remove the chin from its normal position on the thorax, and to tend to produce a more or less complete frontal or face-presentation.

2. As yet we do not know all the influences which may produce frontal or face-presentations. Farther accurate observation of labors in which the large fontanelle descends uncommonly far will complete their number. A rare case was observed by A, in which the distended urinary bladder pressed against the back of the child, and thereby produced a position of the child which, under favorable circumstances, would have resulted in a complete frontal or face-presentation.

3. The primary ætiological influences are the same for both presentations.

An exception is the hemicephalus, which cannot be born in a frontal presentation.

4. The primary ætiological influences almost invariably lie in the fœtus itself, the uterus and its contents. The hitherto known primary ætiological influences are:—

a. The formation of tumors of the neck and the upper thoracical region, as—

α. Struma congenita.

β. Large coils of umbilical cord about the neck (hypothesis).

γ. Broad strictures of the uterus.

b. Abnormal enlargement of the circumference of the head or thorax, or of both together, with a relatively normal length of the child.

The influences are fortified—

α. By uncommon hardness of the fœtal head.

β. By accumulation of water in the cavity of the cranium.

c. Abnormal shortness of the neck.

d. Dolichocephalic formation of the head (a primary elongation of the longitudinal diameter of the head, particularly the occiput or posterior arm of the lever, first described by Hecker).

e. The umbilical cord tensely stretched over the forehead (hypothesis by Winckel).

f. Abnormal position of twins to each other.

g. Want of the roof of the cranium.

h. Repeated pregnancy.

i. Increase of amniotic fluid.

k. Decrease in size of the fœtus.

l. Asphyxia and death of the fœtus, particularly when complicated with distention of the abdominal and thoracic cavities.

m. Oblique position of the uterus.

n. Oblique position of the fœtus, especially abdominal presentation.

o. Rapid discharge of the amniotic fluid in oblique, particularly in abdominal presentations.

p. Rapid change of position of the woman in oblique, particularly abdominal presentations.

q. Tumors in course of formation above the superior pelvic strait.

5. The primary ætiological influences are found the more frequently the more motion is allowed the fœtus, consequently face, and less so frontal, presentations occur more frequently in multiparæ than in primiparæ. General statistics, to be sure, give but little difference in the absolute frequency (Winckel).

6. The secondary ætiological influences proceed from the normal and abnormal constrictions of the genital tract.

An arrest of the occiput, or forehead, during the descent of the head may occur—

a. At the internal os.

b. At the external os.

c. At tumors, which laterally compress the lower portion of the uterus.

d. At the deep-seated placenta.

e. At the pelvic inlet (linea innominata).

f. At the spine of the ischium.

g. At the ligamentum spinoso- and tuberoso-sacrum (if the spine of the ischium be unusually projecting or very long, or the plane of the pelvis be but little inclined).

h. At exostoses and tumors of the pelvis.

The pelvis is, in the majority of frontal and face-presentations, the cause for the farther or secondary deviation of the chin from the thorax; the development of face-presentations alone is due almost entirely to the pelvis. The order of frequency of the development of the face and frontal presentations in different forms of pelvis, is: 1. oblique; 2. moderately generally narrow; 3. normal; 4. slightly narrow in the conjugate diameter, flat and rachitic; 5. wide.

i. At the hymen; and

k. At the vulva.

7. The more room there is above the narrow spot for an abnormal passive motion of the fœtus, the more frequently do frontal and face-presentations develop themselves.

Consequently the brim of the pelvis is the most favorable place to change normal, or nearly normal, vertex into frontal or face-presentations.

8. Frontal presentations are temporarily more frequent than

face-presentations. They do not become permanent until either the primary or the secondary frontal presentation, developed during the descent of the head, becomes fixed in its position by the surrounding organs. This fixation takes place—

a. At the brim of the pelvis, and

b. At the floor of the pelvis, by the bony walls of the pelvis.

c. At the middle of the pelvis, not unfrequently by the os contracted about the neck of the fœtus.

9. It cannot be said that certain pelvic varieties exclusively favor the development of face-presentations. With mature, or almost mature, children those pelves are most favorable for the development of frontal and face-presentations which present only a slight disparity between the size of the head and the dimensions of the pelvic inlet.

10. Frontal presentations are developed perhaps with equal frequency at the brim as at the floor of the pelvis. In the latter case the funnel-shaped pelves, and those with very slight inclination and wide inlet, are the most favorable.

11. In the most extreme degrees of deformed pelves frontal as well as face-presentations can but very rarely occur.

P. F. M.

THE MINERAL SPRINGS OF THE UNITED STATES AND CANADA. With Analyses and Notes of the Prominent Spas of Europe, and a List of Sea-side Resorts. By GEO. E. WALTON, M.D., Lecturer on Materia Medica in the Miami Med. College, Cincinnati, etc. New York: D. Appleton & Co., 1873. pp. 390.

THE somewhat indiscriminate manner in which mineral waters (or at least the various popular watering-places) are frequently prescribed, both in Europe and this country, render a book like the one under discussion a very desirable addition to a medical library. For in it we find enumerated not only the various mineral springs of the United States, Canada, and Europe, and the most popular sea-side resorts of this country, but also very interesting chapters on the history, origin, and physical properties, classification, action, chemical constituents, therapeutics, and application to the various forms of disease (only chronic diseases) of mineral waters, suggestions on the regimen to be observed while at a mineral spring, the various kinds of mineral waters (alkaline, saline, sulphur, chalybeate, purgative, calcic, thermal, and unclassified), the anatomy and physiology of the skin, the physiological and therapeutical effects of hot, cold, Turkish, and other baths, the douche, sitz,

foot-bath, etc. Under the description of each mineral spring we have its therapeutical properties and indications.

Considering the frequency of the question, "What mineral spring should I visit or use during the coming season?" and the exceedingly common sale on draught of Kissingen, Vichy, and other mineral waters at our drug stores, a somewhat more definite knowledge of the chemical constitution and medicinal properties of the various springs, as well as the regimen to be observed during their use, would seem desirable. Dr. Walton's book fills this necessity in a scientific and pleasing manner, and can be read with advantage by the physician as well as layman.

BOOKS RECEIVED.

SURGICAL DISEASES OF INFANTS AND CHILDREN. By M. P. GUERSANT, Honorary Surgeon of the Hôpital des Enfants Malades, Paris; Honorary Member of the Société de Chirurgie, etc. Translated from the French by RICHARD J. DUNGLISON, M.D. Philadelphia: Henry C. Lea. 1873. 8vo, pp. 354.

GENERAL AND DIFFERENTIAL DIAGNOSIS OF OVARIAN TUMORS, with Special Reference to Ovariotomy. By WASHINGTON L. ATLEE, M.D. With 39 illustrations. Philadelphia: J. B. Lippincott & Co. 1873. 8vo, pp. 482.

PROCEEDINGS OF THE DUBLIN OBSTETRICAL SOCIETY FOR SESSION OF 1871–2. Dublin: Fannin & Co. 1872. 8vo, pp. 164.

DISEASES OF THE URINARY ORGANS: including Stricture of the Urethra, Affections of the Prostate, and Stone in the Bladder. By JOHN W. S. GOULEY, M.D., late Professor of Clinical Surgery and Genito-urinary Diseases in the Med. Dept. of the University of the City of New York, Surgeon to Bellevue Hospital, etc. etc. With 103 illustrations. New York: Wm. Wood & Co. 1873. 8vo, pp. 368.

A TREATISE ON THE PRINCIPLES AND PRACTICE OF MEDICINE, designed for the Use of Practitioners and Students of Medicine. By AUSTIN FLINT, M.D., Professor of the Principles and Practice of Medicine and of Clinical Medicine in the Bellevue Hospital Medical College. Fourth edition, carefully revised. Philadelphia: Henry C. Lea. 1873. 8vo, pp. 1070.

THE SCIENCE AND ART OF SURGERY; being a Treatise on Surgical Injuries, Diseases, and Operations. By JOHN ERIC ERICHSEN, M.D., Senior Surgeon to University College Hospital, and Holme Professor of Clinical Surgery in University College, London. A new edition, enlarged and carefully revised by the Author. Illustrated by 700 engravings. In two vols. Philadelphia: Henry C. Lea. 1873. Pp. 1988.

TRANSACTIONS OF THE OBSTETRICAL SOCIETY OF LONDON. Vol. XIV., for the Year 1872. London: Longmans, Green & Co. 1873.

FISTULA, HÆMORRHOIDS, PAINFUL ULCER, STRICTURE, PROLAPSUS, AND OTHER DISEASES OF THE RECTUM; THEIR DIAGNOSIS AND TREATMENT. By WILLIAM ALLINGHAM, Fellow of the Royal College of Surgeons of England, Surgeon to St. Mark's Hospital for Fistula, etc. etc. Second edition, revised and enlarged. Philadelphia: Lindsay & Blakiston. 1873. 12mo, pp. 265.

Editor "American Journal of Obstetrics."

Dear Doctor:

I avail myself of the privilege afforded me by you of making a statement in reference to Dr. Skene's paper on Sclerosis Uteri, which appears in this issue, and the proof sheets of which you have given me an opportunity of reading. In the report of a committee, appointed by the New York Obstetrical Society, I appear as an opponent of Dr. Skene's views. This position is in entire opposition to my teaching and writing; and I wish to say that I do not dissent from them, but, on the contrary, fully endorse them. I regret that carelessness on my part should have allowed me to append my name to a report which I feel sure I never read, either in MS. or in print. The fault was mine, I have no doubt; but it is not that which I desire to explain or correct—I wish to be understood as not endorsing the views of my colleagues on the committee, and of fully sharing the opinions of Dr. Skene.

Hoping that this statement will reach you in time for issue in your next number, and cordially thanking you for the kindness which permits its late insertion, I am

Very sincerely yours,

T. GAILLARD THOMAS.

296 Fifth Avenue.

THE AMERICAN

JOURNAL OF OBSTETRICS

AND

DISEASES OF WOMEN AND CHILDREN.

VOL. VI.] NOVEMBER, 1873. [No. 3.

ORIGINAL COMMUNICATIONS.

AREOLAR HYPERPLASIA AND SCLEROSIS UTERI:

A REPLY TO THE REPORT OF E. NOEGGERATH, M.D., T. G. THOMAS, M.D., AND JAMES L. BROWN, M.D., THE COMMITTEE APPOINTED BY THE NEW YORK OBSTETRICAL SOCIETY TO REVIEW DR. SKENE'S FIRST PAPER.*

BY ALEXR. J. C. SKENE, M.D.,
Professor of Gynæcology in the Long Island College Hospital, Brooklyn, New York.

THE Committee appointed by the New York Obstetrical Society to report upon a paper which I presented at a previous meeting, entitled "A brief Sketch of the Pathology of Areolar Hyperplasia," etc., while offering objections to the views then stated, at the same time kindly invited me to bring before the Society the "proofs and facts" upon which my so-called "theories" were based. The reason why my response to that invitation has been delayed until now is the fact that no opportunity offered sooner.

* Dr. Skene's paper and the report of the committee appeared in the number of this journal for November, 1872.

Through the space kindly granted in this journal, I gladly avail myself of the courtesy of the committee; and in attempting to sustain the views presented in the paper, I shall be compelled to disagree with several of the conclusions set forth in the report.

It will be remembered that in the paper which I submitted, the statement is made that "true areolar hyperplasia occurs as a result of long-continued hyperæmia"—a position which I reaffirm with emphasis, and trust that the "proofs" are such as will be satisfactory to the committee.

In reviewing this statement in the paper, the report says: "The question here arises whether hyperplasia, namely, a growth and development of areolar tissue, a process which at the present time, lacking a better name, may be properly called one of *inflammatory* nature, does ever occur as the result of hyperæmia."

In answer to this it may be stated that hyperplasia is not a "process" of any kind; it is merely the *product* of a process; and it will be seen, by reference to the paper, that I do not make the statement that the process is *inflammatory* in its nature.

But the committee seem determined to raise the question as to the precise nature of the vascular lesion which precedes the textural change, and I shall have to be content to let them settle it by their own showing. If the "proofs and facts" are not satisfactory, it must rest mainly with the committee, not with me.

In the first place, they affirm that the process which eventuates in hyperplasia "may be properly called one of *inflammatory* nature;" while, in the very same

sentence, they raise the question as to whether it "ever occurs as the result of hyperæmia!"

Now it seems to me that if we are to accept the generally received views of pathologists as to the nature of inflammation, the statement of the committee involves them in the most perplexing confusion. Can we have inflammation in a highly *vascular structure*, such as the uterus, without previous hyperæmia?

I am aware of theoretical objections that may be urged in answer to this; but I question the "authority" that applies any non-vascular theory of inflammation to a structure like the uterus.

In challenging this strange, and, it seems to me, purely speculative theory of the committee, I simply affirm that if hyperplasia is of *inflammatory* origin, as they seem to insist, then it logically follows, according to the most "trustworthy" writers on pathology, that a previous condition of hyperæmia was present.

A further argument against the hyperæmic theory of the paper is based on the experiments of Bernard, in which he induced hyperæmia by "disjection" of the sympathetic nerve. We are told that such hyperæmia, "although it lasted for weeks or months, never led to areolar hypertrophy."

Now I respectfully submit that this statement shall not be accepted as settling the question in controversy. Indeed, the mere fact of hyperæmia, as a separate fact, settles nothing. It may be mild or severe, of short or long duration, followed in one case by growth of tissue and in another by inflammation, destruction, and death of a part. In the case cited by the committee, it would

be natural to infer that the results would be such as are described. But because the "disjection" of the sympathetic nerve, although followed by protracted hyperæmia, did not produce increased growth of a part, are we to infer that hyperæmia arising from natural causes, especially hyperæmia of *highly vascular tissues*, may not be followed by proliferation of connective-tissue cells?

After raising these objections to the statement regarding hyperæmia, the report gives a "*theory*" regarding the development of areolar tissue. The statement is this: "It is not the increase in the amount of blood which supplies a certain district of the body, but rather the peculiar conditions which we call, collectively, irritation, which are apt to modify its affinities to certain constituents of the blood, or else the presence of specific elements in the blood, upon which certain tissues or part of tissues exert a special attraction, in consequence of which the nutrition of the latter becomes modified."

Now it appears that the somewhat indefinite term "irritation" is no better than that of "hyperæmia," in explaining the process by which hyperplasia is produced. And, strange to say, the report condemns its own theory regarding *irritation.*

Hear what it says on this point: "Until now, at least, not one experiment exists to prove that by an *irritation* applied to the vessel itself a proliferation of cells, or an increase of the fibrils, can be produced in the healthy body."

If this argument holds good, then the theories offered both in the report and the paper must be alike rejected.

Regarding the "specific elements in the blood" producing areolar hyperplasia of the uterus, that must be taken, of course, as purely *speculative.* It does not seem reasonable to suppose that blood, which maintains perfectly healthy nutrition of all the other organs and tissues of the body, should contain "specific elements" which would produce changes of structure in *the uterus alone.*

The report further states that "It is doubtful whether any one gynæcologist has ever followed up the development of the so-called second stage, where the increase of the areolar tissue is fully established, and could trace, clinically, its genesis out of a simple state of hyperæmia of the neck. The common error which was committed consisted in the method of demonstrating hyperæmia in one patient and hyperplasia in another, and assuming, by reasons based on prevailing faulty physiological views of the nature and course of inflammation, that the former condition was the precursor of the latter."

In answer to this I respectfully submit that the mode of investigation given in the report is fallacious; but to observe hyperæmia, in a given case, followed by the development of areolar hyperplasia, would lead us to suppose, at least, that the one stood in a *causative* relation to the other. This, I believe, has been done. For proof I refer you to one of your committee, for whose opinions I entertain the highest respect. On page 283 of Prof. Thomas's work on "Diseases of Women," you will find the following: "Every practitioner must have met with cases in which a large, red, engorged, and soft uterus, examined after an interval of several years, has

been found, to his surprise, to have become small, *densely* hard, *white*, and *anæmic*, and its cavity diminished in size. Such an organ removed from the body cuts almost like cartilage, and appears, when cut, almost as dense and bloodless."

Again, the report says:

"But to consider the co-existing hyperæmia as the primary stage, the cause of the hyperplasia, we cannot admit. If a *causæ nescius* between the two is to be upheld, we must rather consider it as the consequence than as the cause of areolar hyperplasia."

This statement in the report, it appears to me, may fairly be challenged. It can be proved, indeed will not be denied, that areolar hyperplasia has been preceded by hyperæmia; while it has *not* been proved, in the report, that areolar hyperplasia occurs without a preceding hyperæmia.

If such proof can be furnished, it will certainly be most valuable at this time; although the arguments given in the report are not sufficient to overthrow the use of the term "hyperæmia." Still, that the term, as used in the paper, is open to objection I would not pretend to deny. The idea would, perhaps, have been more correctly conveyed, by stating that areolar hyperplasia of the cervix uteri occurs as the result of a deranged nutrition, in which hyperæmia is the most *prominent element.*

This was the ground intended to be taken in the paper. The use of the term "hyperæmia," in the sense in which it is employed in the paper, can only be excused on the ground that it is difficult to find a word which

clearly expresses the conditions which terminate in areolar hyperplasia.

More proof of the correctness of the views expressed in the paper regarding this point may be obtained by referring again to the excellent work of Prof. Thomas, who was one of the first, I believe, to discuss the subject of areolar hyperplasia of the uterus.

At page 276 the following statements are found: "The first step in the disorder is always congestion. . . . Displacement of the uterus at first results in passive congestion. This being kept up, hypergenesis of connective tissue takes place." Again, on page 277 it is stated that "One very prolific source of the affection is the habitual prolongation of the intense physiological congestion attendant upon ovulation by over-exertion on the part of the woman. Nature intends that this condition should last only a short time, and any habit of life which keeps it up abnormally long has a decided tendency to induce this affection of the connective tissue." On page 280 it is further stated that "Cases which were formerly regarded as instances of inflammation, on account of the existence of enlargement, congestion, and tenderness upon pressure, the microscope now proves to have been instances only of *congestion*, resulting in hypertrophy of that tissue filling the interstices between the muscular structure of the uterus." On page 281 of the same work, we learn that Dr. Peaslee "preferred to call the disease under consideration congestion, rather than inflammation, because it has none of the events of inflammation." From the same page we quote the views of Dr. Kammerer:

"Chronic inflammation of the substance of the non-puerperal uterus is never met with; what has been described as such is hypertrophy of the connective tissue resulting from long-continued hyperæmia."

In the Pathological Anatomy of the Female Sexual Organs by Klob, on page 129 the following statement is made: "The causes of this diffuse growth of connective tissue must be sought for in habitual hyperæmia, and I cannot concur in that explanation which interprets the process described as chronic inflammation."

The number of such quotations might be indefinitely multiplied.

Pathologists, in discussing areolar hyperplasia as it occurs in other organs and tissues, are uniform, or nearly so, in their statements that it occurs as the result of chronic inflammation.

Billroth, one of the most recent, states that "new connective tissue is developed in chronic inflammation, and that the deposit of new tissue, thus produced, is called areolar hyperplasia."

Now, if we turn to the pathology of chronic inflammation, we invariably find that hyperæmia is one of the most important, if not *the* only element in the process.

All these statements, however, are based on *post-mortem* investigations and clinical observations, and it may still, therefore, be claimed that the process by which areolar hyperplasia is developed has not been demonstrated.

We may, however, by referring to the observations made by ophthalmologists, obtain valuable information. Thus the development of connective-tissue cells has

been accurately observed by the aid of the ophthalmoscope. The congestion which preceded, and for a time accompanied, the increase in the connective tissue, has also been clearly demonstrated.

For the truth of these statements I refer you to the works of Iwanoff, Wecker, Nagle, and others.

This, then, it seems to me, may be taken as reliable proof, as much so as we can obtain, that hyperæmia is at least an important element in the production of areolar hyperplasia.

The report next quotes from the paper this statement: "True areolar hyperplasia does not, as a rule, extend to the uterine walls." This is objected to by the committee, who affirm that "This opinion collides with the statements of the most trustworthy writers of the present time; and, above all, with those who have thought it worth while to substantiate their statements by *post-mortem* examinations. We name, among them, Virchow, Klob, Braun, and Seiffert. In the experience of the committee, true areolar hyperplasia is not only not limited to the cervix, but does, as a rule, extend to the body of the uterus."

If it is true (as the committee claim here) that this statement is opposed to the most "trustworthy pathologists," it certainly agrees with the views of the most reliable clinical observers. This is proved by the well-known fact that disease of the *cervix uteri* is very much more common than disease of the *body* of the uterus. Chronic metritis, such as gives rise to areolar hyperplasia, is well known by clinical observers to be a very rare disease; certainly rare as compared with the fre-

quency with which the cervical form of that trouble occurs.

That areolar hyperplasia does affect the *body* of the uterus has not been denied in the paper; but the comparative frequency with which it affects the cervix is simply made the basis of the rule. Further proof of the correctness of the statement made in the paper may be found by again referring to the work of Prof. Thomas, of the committee.

On page 274 the statement is that "The habitat of hyperplasia limited to the cervix, *which is by far the commonest of the varieties*, is represented by Fig. 84;" and on page 275 he says: "Of all forms of the disease the *cervical* variety is decidedly the most common."

Klob, one of the authorities named in opposition to the paper, is certainly misconstrued by the committee; for he clearly states, at page 131 of his work, that proliferation of the connective tissue of the cervix uteri does occur as a distinct affection.

Other "trustworthy" authors might be quoted to prove the same point, such as Bennet, Hewitt, and Simpson; but possibly they may be objected to, on the ground that they describe what is now called areolar hyperplasia, as enlargement and induration; but I respectfully submit that they mean one and the same thing.

I may also state that I have repeatedly amputated the enlarged and hardened portions of the cervix, which were found, on examination by the microscope, to be principally composed of connective tissue. The

examinations were made by a medical gentleman who is thoroughly skilled in the use of the microscope.

In these cases, it may observed, neither physical signs nor clinical history indicated the presence of any disease of the *body* of the uterus.

The next statement in the paper, which the committee object to, is this:

"The mucous membrane covering the indurated portion may be, and usually is, highly congested."

The report claims that the "reverse of this is observed in many cases."

Regarding this point it can only be said that, in sclerosis resulting from *puerperal metritis*, the mucous membrane covering the cervix is often pale and anæmic; but in sclerosis of the cervix *alone*, the mucous membrane of the part is generally congested.

However, it may be safely affirmed that it is not easy to find "authority" to prove the views expressed in this latter point either in the paper or the committee's report. It is simply a matter of clinical observation.

Objections are raised by the committee to a statement in the paper, which, by mistake, has been left out in the printed copy of the report which I obtained. I presume, however, that reference is made to this: that true hypertrophy of the uterus occurs as the result of long-continued hyperæmia.

To this statement the same objections are raised by the committee which were applied to the views regarding areolar hyperplasia of the neck of the uterus as resulting from hyperæmia. Further on in the report the

objection is emphasized by this statement: "As yet it is questionable whether a uterus, originally of normal size, does ever, out of pregnancy, assume true hypertrophy."

In confirmation of the ground taken in the paper, several authorities may be quoted.

Klob, page 44, says: "The result of excessive formative action, not altered in quantity, consists in an enlargement of the uterus, from increased development of elements similar in character and disposition to the physiological tissues of the organ.

"With the exception of an increase of its volume, the uterus retains all its other physical properties, and we call this condition *hyperplasia* or *numerical hypertrophy*."

Page 45 of the same, the further statement is made, that "the *muscular tissue* as well as the connective tissue must be affected simultaneously with the excessive formation, and thus the relative proportion of both tissues in the enlarged uterus must remain normal." Again, on page 220 of the same, ... "genuine hypertrophy of the uterus is an enlargement and intumescence of the organ, caused by a surplus of nutritive material received into its elementary parts;" page 221, "genuine hypertrophy of the uterus is rare, being generally *accompanied with*, and dependent upon, proportionate *congestion*."

Hewitt, page 363, says that "the physical changes most frequently resulting from this chronic inflammation of the uterine tissue being *congestion*, undue sensibility, and hypertrophy."

Meigs, while treating of chronic inflammation of the uterus, makes the following statement, on page 290: "I suppose the texture in these instances has acquired the character of that of the gravid uterus, yet without gravidity, and so, giving rise to what may be denominated hypertrophy of the organ."

Hodge, page 51, makes the following statement: "It is maintained by us, and substantially by many authorities, that hypertrophy is the result of an active congestion without inflammation."

In addition to the statements of the authorities quoted, it may be said that, in cases of desquamative dysmenorrhœa, the mucous membrane of the uterus undergoes a form of true hypertrophy.

It may not, perhaps, be out of place to mention in this connection, that I have recently seen two cases of extra-uterine pregnancy—one fallopio-ovarian and the other tubal—in which the uteri were found to have undergone true hypertrophy.

This was demonstrated post-mortem. We might also recall the well-known fact, that the mammary glands undergo hypertrophy in conditions other than of pregnancy. This clearly proves that *part* of the reproductive system, at least, becomes hypertrophied from congestion.

Other "trustworthy pathologists" might be quoted who favor the idea that hypertrophy of the uterus occurs as the result of long-continued congestion; but enough, I trust, has been given to show good and suf ficient reason for the statements made in the paper on this point.

The next portion of the paper objected to in the report is this: "Frequently true hypertrophy of the body of the uterus is found connected with areolar hyperplasia of the cervix."

Certainly a good amount of proof has been given to show that areolar hyperplasia of the *cervix alone* occurs without the *body* of the uterus being involved, and also that hypertrophy of the body of the uterus occurs as a distinct affection; hence, as these two conditions occur separately, it can hardly be considered unreasonable to suppose that they occur together. There is surely nothing very "extraordinary" in this proposition! However, it is freely admitted that the statement in the paper, on this point, is open to criticism. It would have possibly been more in accordance with facts to have stated, that occasionally, not frequently, areolar hyperplasia of the cervix uteri is accompanied with enlargement of the body of the uterus, either from imperfect involution or hypertrophy, or swelling resulting from congestion.

The report also objects to the "anatomical characteristics" given in the paper. This is to be regretted, for the reason that the statements made in the paper regarding the "pathological anatomy" of these affections are based upon the authority of Klob, Rindfleish, Noeggerath, and Thomas—sources of information that I have always regarded as "trustworthy," and for which I have entertained the profoundest respect.

Finally, the report objects to the classification suggested in the paper. The paragraph on this point reads thus:

"As long as the doctor is not in a position to lay before us a goodly number of anatomical researches, as long as he draws his conclusions on his reading and clinical observations only, he is not justified in cutting out a section of that class of diseases, hitherto called chronic metritis, or areolar hyperplasia, and to designate it with another name."

There may be critical objections urged to the term I suggest, but I respectfully submit that they are not sustained by the reasons given in the report. Anatomical researches can never demonstrate the *processes* by which certain changes of structure are produced. And it will be seen, in the paper, that I lay no claim to such demonstration, and for the best of all reasons, that it is beyond my *research.* I need not remind the committee that, in the study of every department of physical science, questions of *phenomena* and the *causes which produce* phenomena are distinct lines of inquiry, and that the study of one does not necessarily lead to a knowledge of the other. When we attempt to inquire into the "*causes of things*" we are often involved in the merest hypotheses. For this reason I carefully avoided going back of the change itself. In the absence, therefore, of exact knowledge as to the *nature of the process,* I have been compelled to rely upon clinical observation to determine, as well as may be, a suitable name for the diseased action which produces the lesion under consideration.

I find it difficult to understand why the committee should object to the term "sclerosis" simply because it was suggested by conclusions drawn from the analogy

of other morbid structures, and from observations of general physical properties, and not from "anatomical researches."

The report also states that the term "is not *new*," but was "used already for the same affection," etc.

This, allow me to remind the committee, is little more than a repetition of a statement made in the paper. It is there distinctly affirmed that the term "sclerosis" was a "familiar one in medical literature." I am not aware, however, that the term has ever been used heretofore to designate the changed structure of the cervix uteri by areolar hyperplasia, and to that condition of the whole organ in which there is areolar hyperplasia and imperfect involution caused by puerperal metritis.

In defence of the paper it may be said that "trustworthy" anatomical researches have demonstrated the fact, that, in certain cases of uterine disease, the uterus has undergone precisely those changes of structure described, namely, *areolar hyperplasia* and *imperfect involution*. These changes of structure are manifested, for instance, by the uterus being increased in size, denser in quality, and anæmic. This condition of the uterus, which results from an acute inflammation, has been usually described as "chronic metritis."

Now, it is quite evident that there is not present a single element of *inflammation* in the case, except the products, events, or results of that process. That these conditions were produced by inflammation is readily granted; but that the changed structure is one of inflammation of any kind I deny. To call such

lesions of the uterus "chronic inflammation" appears to be a wholly unscientific use of the term. We might, with as much show of reason, call a cicatrix acute inflammation. Dr. Noeggerath, in THE AMERICAN JOURNAL OF OBSTETRICS, has, with very great clearness, stated that these pathological conditions are the products of "puerperal metritis," and are produced by "*no other cause.*" And still he calls the disease "chronic *metritis.*" As a substitute for that name, and as more clearly and correctly indicating its character, the term "*sclerosis*" has been employed in the paper. Having given what seems to me good and sufficient reasons why the term chronic metritis is objectionable, it may be again stated, that the term sclerosis more correctly expresses the precise pathological lesions of the affection under consideration than any of the terms employed heretofore.

Regarding the term "areolar hyperplasia," which has been employed to designate all that class of pathological conditions which result from uterine disease of various kinds, it may be fairly claimed for it that it is better than those in general use; still it is objectionable, because it does not cover the whole ground.

While it may fairly express the condition of the cervix, in which there is "diffuse interstitial hypertrophy," it is not applicable to that condition of the uterus which arises from acute "puerperal metritis." In such cases there is not only areolar hyperplasia, but also sub-involution. The difference between the anatomical characters of areolar hyperplasia and chronic metritis has been stated in the paper, and might be re-

peated, were it not that the committee has raised objections to the "anatomical characteristics" there given. That such a difference exists can be readily seen by referring to the authoritative writings of Drs. Noeggerath and Thomas. So long, then, as the "areolar hyperplasia" of Dr. Thomas, and the "chronic metritis" of Dr. Noeggerath, differ in their "pathological anatomy," so long will it be impossible to correctly apply either name to *both* affections.

With the view, therefore, of preventing confusion, if possible, in our nomenclature, the term "sclerosis" has been proposed as least objectionable. The name is applicable to any of the structural changes belonging to that class of uterine diseases; and, if employed in a generic sense, it represents the true pathological condition of a class of uterine diseases of which there are several varieties. Classified, for instance, according to the *extent* and *location* of the disease, there are two forms of sclerosis—*circumscribed* and *general*. There are also two forms classed according to the *causation; first*, sclerosis resulting from that form of deranged nutrition which belongs to the order of subacute inflammatory affections; and, *secondly*, sclerosis resulting from puerperal metritis. If, by the employment of sclerosis, or any other suitable term, we can simplify the nomenclature of uterine diseases, and by this means harmonize conflicting views regarding the use of terms in uterine pathology, practical benefit, it seems to me, must follow therefrom. It was with this view that I suggested the term; believing, at the same time, that it correctly represents the condition described.

The committee simply oppose the term which I have used without giving, it seems to me, any good reasons for doing so. Until the objection is sustained by reasonable arguments, I shall feel justified in maintaining the ground which I have taken, notwithstanding the high authority of the opposition.

REMARKS ON OVARIAN PHYSIOLOGY AND PATHOLOGY.

BY ALFRED MEADOWS, M.D., F.R.C.P., Lond.
Lecturer on Midwifery and the Diseases of Women and Children at St. Mary's Hospital; Physician to the Hospital for Women, London.

(*Continued from Vol.* vi., *No.* 2, *August*, 1873.)

IN my last paper I considered some points in connection with ovarian physiology, prefacing what I had to say upon this head by a brief account of the general and microscopical anatomy of the ovary, especially with reference to its vascular and nervous supply. I pointed out how, by the free anastomosis which exists between the spermatic artery, which is the principal source of blood supply to the ovary, and the ovarian and Fallopian branches of the uterine artery, provision is made for a more equable supply of blood to the organ during the times of its greatest functional activity, than would result if there were no such arrangement, and if, as in the case of the kidney, with which I compared it, the blood came entirely from one source.

I expressed my belief that this arrangement must be intended for the advantage of the ovary, and not

for either the uterus or Fallopian tube, grounding my opinion partly upon the fact that the anastomosis takes place in or upon the ovary, and not upon the other organs—but chiefly on account of the greater physiological dignity and importance of the ovary, to which, in truth, all the other generative organs are only subsidiary.

In regard to the venous system, we saw that the same care is taken to provide the freest possible communication between these several parts, and I pointed out what seemed to be the especial function of the several venous plexuses, over and above that of securing the due return of the venous blood, namely, the production of a certain amount of erection and rigidity by means of which the ovary is, as it were, held in a particular position, so that the fimbriated extremity of the Fallopian tube may seize the organ at that point where the rupture of an ovisac is about to take place, and thus the escape of the ovum and its safe conduct along the tube to the uterus is secured.

Coming next to the consideration of the nervous arrangements, I pointed out the origin of the spermatic plexus,—which has almost the exclusive privilege of supplying the ovaries with their nervous energy,—in the aortic and renal plexuses, there being also some communication with the hypogastric plexus, by means of which more particularly, through the branches sent from the second, third, and fourth sacral nerves, the ovaries are brought into relation with the spinal cord and nerves—while, by their other origins, they, as it were, hold communication with the abdominal viscera, and

especially with the kidneys. It was in this way that I ventured upon what seems to me to be a probable explanation of the mode by which the excessive secretion of the so-called hysterical urine is brought about. I also laid great stress upon the fact that the same plexus of nerves which supplies the ovary supplies also the Fallopian tube and the fundus and upper part of the body of the uterus, so that the parts which are most immediately associated together in physiological work are bound up, as it were, in one circle of nervous energy, besides being also in direct relation through the blood-vessels.

Having discussed these anatomical details, I endeavored to explain some points in the physiology of the ovaries—referring especially to the great changes which take place in their vascular system during ovulation. I also tried to explain by what means it appears to me that the phenomena of menstruation are brought about. I expressed my belief that the activity of the ovarian circulation induces a relaxed and dilated condition of the capillaries about the fundus and body of the uterus, in obedience to a well-known law which governs functional and nutritional activity through the agency of the vaso-motor system; and I further expressed my conviction that the action of the ovaries upon the uterus in the production of menstruation is direct, and not reflex, and this opinion I grounded upon definite anatomical facts which admit of no dispute.

Having, then, discussed some of the principal points in the anatomy and physiology of the ovaries, I pass on now to consider some of the more important, and, I

hope, instructive features in their pathology; and I think it will be found that attention to these physiological details will help us to understand much that would otherwise be obscure, and enable us to interpret clinical phenomena in such a way as to suggest in future a more satisfactory system of ovarian therapeutics than, I fear, we can boast of possessing at the present time. The great advance which has been and is still being made in pathological study, and the more accurate knowledge which we now possess of the physiology of the vaso-motor system of nerves, by which we can, to some extent, estimate how the supply of blood to a part, and with it, of course, the character of the nutritive changes, is or may be controlled.

All this opens up an entirely new field for therapeutical observation, which must eventually, I think, be the means of revolutionizing our system of therapeutics, so that in the end we, or our successors, may hope to see the treatment of disease, which, in too many instances, is now nothing more than blind routine, or ignorant empiricism, placed upon a definite scientific basis which shall be as exact, and as certain, as anything else in nature. It may appear to some that this is a very utopian idea, and that it indicates far more of enthusiasm than judgment; but I am quite prepared to stand by the statement, which is made after full reflection; and I repeat that we, students of nature as we profess to be, and practitioners of medicine as we are, ought never to rest content until we have discovered the immutable laws which govern the natural actions of the body both in health and disease, for we may be quite sure of this—that nothing is left to

chance, that all follows a definite, prescribed order, both in normal and abnormal actions, and that the effects of remedies are subject to the same laws, did we but observe them with sufficient exactness, and with the same minuteness of observation with which we regard the operation of any physical law.

The importance of remembering in our daily practice, and especially in diseases of the abdominal or pelvic organs, the influence of the vaso-motor nervous system in controlling and regulating the organic functions, cannot be too strongly insisted upon. In the recognition of this fact we seem to have a lever of great power, which I believe we may use with very marked effect if only we apply it skilfully; and in the case of an organ like the ovary, whose functions, and therefore, may I not say, whose diseases, are especially characterized by changes in the blood-vessels, the lever in question seems capable of being wielded with more than ordinary effect.

There is one observation which I would suggest, in passing, having reference to the analogy which exists between the diseases of the ovary and those of the testis. Some of the former are produced in precisely the same way, lead to the same results, are attended by very much the same symptoms, and require very similar treatment, as do the corresponding diseases of the testicle. This is not to be wondered at, considering their similarity of function. There is, moreover, a much closer structural resemblance between them than we might at first suppose; and here, as in many other instances, the study of comparative anatomy reveals the unity which pervades the whole animal kingdom. In

some of the lower animals hardly any difference is observable in these two organs, even in their perfect and permanent forms, and in man the same fact is observed in the early stage of their development. Even in their perfect condition we find many points of resemblance; for instance, both are covered with peritoneum and are enclosed in a short sac—the difference between them in this respect being, that whereas the testis is, as a rule, cut off from the rest of the peritoneal cavity, and enclosed therefore in its own serous membrane,—the tunica vaginalis; the ovary, on the contrary, is not so separate, and has, apparently, only a visceral layer of peritoneum, except in those rare cases of displacement where it occupies the inguinal canal, and has a distinct pouch of peritoneum: its parietal layer is that which is common to all the other viscera. Again, in place of the fibrous capsule of the ovary, we have the tunica albuginea of the testis—its exact analogue—and in the broad ligament which carries the vessels and nerves to the ovary we may recognize the counterpart to the spermatic cord of the testis; while the disposition of the vessels in the gland is precisely similar in the two cases. In the more essential parts of these organs, those in and by which their proper functions are performed, there does not appear at first sight much to warrant a comparison; at the same time, there is a very close resemblance between the products of the two organs, between the so-called "vesicle of evolution," from which the spermatozoa are produced in the testis, and the "Graafian vesicle," which evolves the ovum from the ovary.

Quitting this physiological comparison, and studying

the two organs in their pathological relations, we may note again a striking resemblance in their morbid affinities, differing, however, in this respect, that while in the case of the ovary some of its most serious diseases appear to result not infrequently, as I shall presently show, from perverted physiological action, the same result occurs only with extreme rarity, and perhaps not even then from the same cause, in the case of the testicle; at least if it does, the fact is not within my knowledge. The difference in this respect would seem to be due, in part at least, to the different method by which their respective functions are performed, for whatever resemblance there may be—and no doubt there is a certain resemblance—between the vesicle of evolution in the testis and the Graafian vesicle in the ovary, cystic disease, which is so common in the ovary, is extremely rare in the testicle.

But, while this dissimilarity exists between the two organs in regard to those more formidable organic diseases, there is an undoubted resemblance in other points of pathology. Both, for instance, are subject to certain forms of mal-position; in the one case, the ovary, the descent from the original fœtal position is carried too far; in the other, the testis, the descent is not far enough; and in both cases the result is the detention of the gland in some part of the inguinal canal, and consequent disturbance of its function. Again, both organs are subject to various forms of inflammation, specific and non-specific, acute and chronic; and between orchitis and ovaritis, simple, gonorrhœal, syphilitic, or due to any other form of blood-poisoning, there

is indeed no essential difference, except it be in the greater intractability of the ovarian form, owing, as I believe, to the impossibility of securing physiological rest, and consequent freedom from vascular excitement, in the ovary—a condition which is at least possible of attainment in the case of the testicle. Again, in the simple neurotic affections, both are, I believe, subject to pretty much the same diseases. So, too, in regard to diseased conditions of the veins, it is now a well established fact that the pampiniform, or tubo-ovarian plexus of veins, the bulb of the ovary as it is also called, is liable to become varicose, and so to form a varicocele of the ovary precisely similar to that which occurs in the case of the testicle. We know also that hæmatocele is met with in both cases, and may indeed be produced in the same way. Lastly, in regard to organic diseases, or the formation of distinct growths, though there is undoubtedly some dissimilarity in this respect, the difference is unimportant as against the fact that distinct growths do exist, and that, moreover, in many cases they are precisely similar in the two cases. I need only mention the occurrence of encephaloid and other forms of malignant disease, fibroid tumors, and tubercular deposits, all which are common to the two organs; and, what is still more remarkable, cystic disease of the testicle, resembling in all respects that which occurs in the ovary, is occasionally though rarely met with.

I shall be excused, I hope, for this seeming digression from the immediate subject of this paper, because it appears to me, that, apart from the intrinsic interest

which attaches to such an inquiry, many practical hints and lessons may be gathered from it.

In a therapeutical point of view, undoubtedly the surgeon, to whom the care of the testicle belongs, has the advantage over the physician, who has the medical charge of the ovary; for both in the matter of diagnosis and in the ready and easy application of remedies, the surgeon should be able to boast of a far larger measure of success than falls to the lot of the physician. Whether or no this is the case I am unable of my own knowledge to affirm, but I sincerely hope it may be so, because—and this is the practical ground upon which I justify this reference to the subject—I think we ought to be able, by careful study of the various diseases to which the male organ is subject, to advance our knowledge of the obscurer forms of ovarian disease; and by the facility with which we can observe and watch the effects of remedies on diseases of the testis, whether applied externally or administered internally, if only we observe carefully, and are free from bias or prejudice, we ought by such practice greatly to advance ovarian therapeutics, and thus to remove what I cannot help feeling is an opprobrium to gynæcological science, viz., the present state of diagnosis and treatment of many of the commoner but obscure forms of ovarian disease. I say it with all humility and candour, that I think we have much to be ashamed of in both these respects, though I would fain hope we may fairly plead extenuating circumstances, having regard to the great difficulties which surround the diagnosis of these affections, and the impossibility of applying any instrumental methods

for their detection, such as are applicable to the diseases of almost every other organ of the body, so that, except in the case of the more serious organic diseases, we are perforce obliged to form our opinion almost entirely upon a verbal description of symptoms, which may or may not be corroborated by such vaginal examination as we may be able to make. This fact, while it enhances our difficulties, entails upon us the necessity for greater care in observation, and makes it the more important that we should seek help from any quarter which seems to offer a reasonable chance of success. I believe that we have such a chance in the study of the diseases of the male organ.

In illustration of the pathological influence of the ovaries on distant parts, and the way in which that influence is exercised, it is difficult to make a selection from the many interesting cases which fall under one's observation; but I will select, for its novelty and importance, the *pathological influence of the ovaries upon the nervous system*, and I do so partly because of its extreme interest, and partly because the lessons which it teaches, at least if I correctly interpret them, have a much wider significance than appears at first sight, though I can only now suggest a line of thought which the experience of others may serve to illustrate.

Let me first relate a case. M. S., æt. 18½, consulted me in September, 1867, for amenorrhœa and loss of sight in one eye. She gave me the following history: The catamenia first began at fifteen, and continued regularly for about six months. At that time she was staying in the house of a friend, when one of the inmates was taken

suddenly ill and died. M. S. was greatly frightened at this. She was menstruating at the time, but the discharge ceased in the course of a few hours, and had not returned up to the time of my first seeing her. Immediately on the cessation of the discharge—indeed, a little before it ceased—she was seized with severe pain in the head and sickness. From that time to the date of her consulting me both these symptoms had recurred at regular intervals every month: occasionally she had sickness without headaches, but she never had headaches without sickness; the latter, therefore, seemed in some way to be of cerebral origin. Almost immediately after the commencement of the illness it was noticed that her gait was uncertain, and at times staggering, and her friends remarked that she walked "just like a blind person;" but it was not discovered until some four months afterwards, and then only by accident, that she was blind with one eye—the right—although, from the fact that the peculiarity in her mode of walking had been noticed immediately after the attack began, it is probable that the blindness also dated from that attack. She had consulted an eminent oculist and two of the leading physicians in London, and their united opinion was that she was suffering from a tumor at the base of the brain which pressed upon the optic tract of the right side. With this opinion the prognosis was, of course, unfavorable, indeed so hopeless was the case regarded, that, beyond ordering a blister to the arm, and some iodide of potassium internally, no other treatment was recommended.

It was some few months after this advice had been

given that I first saw the patient, and although I had never met with any similar case, and was much puzzled how to explain the phenomena which this presented, it yet appeared to me, that, having regard to its early history, remembering how distinctly all the symptoms originated, namely, in direct connection with sudden menstrual suppression from fright, and hearing that from that time to the present there had been no return of the catamenia, but that at each menstrual period there was a slight aggravation of the symptoms, especially of pain in the head and vomiting, I could not but regard the two as in some way connected, not merely as coincidences, but directly and intimately as cause and effect.

As the case had been already pronounced a hopeless one, I had little difficulty in persuading the patient and her friends to submit to any treatment I might think desirable. I argued, that inasmuch as the symptoms complained of followed immediately upon the sudden cessation of menstruation, therefore it was at least fair to assume that if the return of menstruation could be brought about we might hope for some amelioration of them. Accordingly I set to work to restore the menstrual function—or I ought rather to say, for this more nearly expresses my thoughts on the subject—to re-establish healthy ovulation. It was nearly six months before I was able to accomplish this, and meanwhile the sight of the left eye was becoming slightly dim, that of the right being so absolutely gone that she could hardly distinguish light from darkness. The first menstruation lasted quite a week, and was very free. The immediate result was ability to distinguish certain colors

with the bad eye (the right), and to make out by a little effort very large letters. The dimness of the left eye ceased almost entirely: she had no headache and no sickness. The same treatment was steadily pursued—it consisted of the application of galvanism to the ovaries, and the administration of rue, cantharides, and cinnamon—and the result was a complete return to health. The menstrual, or rather the ovarian, function was re-established with tolerable regularity, and with each returning catamenial period there was a perceptible improvement in all the symptoms. But it was noted that on several occasions when menstruation did not occur, there was a slight recurrence of the nervous phenomena.

Now, it would not be possible to exaggerate the interest and importance of this history. It seems to open up an entirely new field of observation in regard to ovarian pathology, one which I do not remember to have seen treated in any of our standard works on gynæcology. The question which presses for an answer is, How are we to explain the phenomena which occurred by reference to the assumed cause? In the first place, there were two factors in the case; there was the mental effect of fright on the one hand, and there was the disturbing influence of sudden acute menstrual suppression on the other. I use the latter expression merely in order to state my opinion very decidedly to the effect, that, except in cases where sudden cessation of menstruation there and then occasions local mischief, such as hæmatocele, pelvi-peritonitis, metritis, and the like, it is absolutely incapable in itself of producing any remote consequences, least of

all such as those we are considering. I know that the contrary of this is commonly believed. But, if the views which I have propounded here in regard to the physiology of menstruation, and the relative importance of the uterine and ovarian functions, have any foundation in fact, or are at all consistent with reason, then it must be admitted that we have hitherto attached far too much importance to the mere uterine part of menstruation—that is, to the discharge of blood and mucus from the uterine surface—and far too little to the influence which is borne by ovulation in the process. Yet, if it be true, as I have again and again insisted, that the ovaries are the very central point in the generative system, and that all the rest are mere appendages to them, it follows, I think, that, except for the purely *local* phenomena which may result from the disturbance of the proper uterine functions, no serious mischief can accrue to more distant parts from such disturbance. To my mind, the cessation of menstruation, regarding that as a mere sanguineous discharge from a particular organ, is not more likely to be attended by evil consequences to distant parts, than would be the arrest of any similar discharge from the bowel or elsewhere. It is different, however, with regard to the ovaries. We have seen how, physiologically, these organs are capable of influencing, not only particular parts at a distance, but even the entire organism, and how striking are the consequences of their removal. Physiology, as I have said, is twin-sister with pathology, and it is a law, I believe, in the animal economy, that the pathological importance of a part will bear a very strict com.

parison with its physiology in regard to the relative effects upon the system.

It must be conceded, I think, seeing the course which this case took, apparently as a result of, certainly as a sequel to, treatment, that the phenomena in question were not the consequence of any serious lesion or disease of the central nervous system, it is hardly likely that if such had been the case, any good whatever would have followed the plan of treatment which I adopted. I certainly had no intention of effecting a cure by any treatment of the nervous centres, and if my remedies did so operate, it is something quite new in therapeutics, for which I can take no credit. What I did aim at, and what I believe I influenced, was the ovaries.

To the ovaries, then, we must look, at least in my judgment, for some explanation of the symptoms which occurred in the case I have cited, for they, in my opinion, were alone responsible. How, then, are the facts to be explained? It will be remembered that the amaurosis was at first limited to one eye, the right. Now, this fact alone, I think, is opposed to the view that the suppression of the menstrual discharge was the cause of the symptoms, for then surely not one but both eyes would have become affected, whereas, on the contrary, the result being thus, as it were, one-sided, the logical inference is that the cause which operated to produce that result was one-sided also. And this view is fully borne out by reference to other cases where serious nervous phenomena are brought about by causes acting at a distance from the nervous centres. I believe, in short, that this

was simply a case of what is called *reflex paralysis*, the paralysis being limited to one optic nerve, and probably to that one opposite the side of the affected ovary. Now, that such a thing is possible I need not, I think, stay long to prove. It is generally understood that palsy of the optic nerve will occasion amaurosis, just as paralysis of other nerves, whether of motion or of special sense, will suspend for the time their special function. Brown-Séquard relates a case of amaurosis due to injury of the frontal nerve. Pétrequin records a similar case which was immediately cured by the expulsion of a tapeworm; and there are many cases of this kind mentioned in the Treatise on the Entozoa by M. Davaine. We all know how, in childhood, distant irritations will produce various forms of paralysis, and I have myself met with cases of hemi- and paraplegia occurring in young girls at the commencement of menstruation, and evidently due to ovarian irritation. M. Nonat, in like manner, records several cases of paralysis, the result of uterine disease, and he especially remarks upon the one-sided character of the paralysis when the uterine affection was itself limited to one side.

It must not, however, be supposed that affections of the nervous system consequent upon ovarian derangements are always, or even generally, one-sided. That they will be so mostly when one ovary only is at fault I can well believe, but it would be a strong objection against the view I have advocated if the former were invariably the result, because, as we know, where amenorrhœa is at all persistent, not one only but both ovaries are defective. In the case which is the text of my pres-

ent sermon, I believe that both ovaries were affected, but one very much more than the other, because *it* only was, at the time of the occurrence, actively and prominently engaged in the work of ovulation. We know, however, that the preparation of the Graafian follicle is a work of time, and that though for the most part one only ripens at a time, others are always in preparation. The sudden arrest of the development of the less mature ova is, however, less mischievous in its effects. But even this tells in the long run, and it was, I believe, beginning to tell in the case I have related. More than this: I have had under my care at different times several cases of complete amaurosis of both eyes, brought about entirely by the gradual arrest in the process of ovulation, first in one ovary, then in the other, until both had completely ceased to act, and this was shortly followed by absolute blindness, which remained permanently and hopelessly incurable, owing apparently to the utter impossibility of restoring the ovarian function. I have exhausted all my stock of remedies in cases of this kind, and I know of no more distressing affections than these to treat.

Admitting these facts, then, and they are too well attested to allow a doubt, the question arises as to what explanation can be given of them. I do not think any better answer can be found than that furnished by Brown-Séquard, viz., that the paralysis in all these cases of reflex origin is due to "a contraction of blood-vessels, and to the insufficiency of nutrition that follows this condition of the vessels." In the case of M. S. which I have related, most careful ophthalmoscopic ex-

amination of the eye failed to discover any lesion of the optic nerve or retina, and this exactly agrees with what is found in cases of reflex amaurosis. I believe that, just as arrest of the secretion of bile and consequent jaundice may be produced by fright or other severe mental impression, so in like manner the function of ovulation may be suddenly arrested; and as there can, we believe, be no menstruation without ovulation, the arrest of the latter suspends the ovarian influence; the blood-vessels which supply the menstrual secretion by reason of their dilatation in the manner I have already explained, are suddenly contracted and the discharge ceases. At the same time, this sudden arrest of a most important function (ovulation), just when it is at the crisis of its development, causes rapid contraction of the blood-vessels at some part of the spinal cord, the effect of which is transmitted to some distal extremity, and so a paralysis is produced. Why one spot should be selected rather than another; why the optic in preference to the auditory, why a sensitive and not a motor nerve; all these are questions which at present we are utterly unable to answer. But experimental physiology has of late years thrown so much light upon the obscurer facts of pathology, that we may in time hope to be able to explain much that is at present shrouded in mystery. I do not think, however, that I have stated anything which our present knowledge does not warrant; and if this be so, I know of no more interesting subject in ovarian pathology than this of the influence of the ovaries upon the nervous system, because it is obvious that if they are capable of thus

affecting the nervous system, there is hardly any organ in the body which may not be brought under their influence.

Turning now to another subject, I have already said that the ovary during the performance of its function of ovulation increases to at least double its size, that it becomes intensely vascular, is the seat of an actual hæmorrhage into its substance, and finally has a distinct laceration of its tunics—and all this, probably, occurs again and again, not once now and then, but month by month, without giving rise to any disturbance, local or general; without, in fact, occasioning any symptoms whatever, except a discharge of blood from the uterus. The degree of vascularity of the part is well seen in some injected microscopic preparations in my possession. Under these circumstances we have probably all the local phenomena usually attributed to a state of inflammation, with the single exception of *pain*,—there is redness, swelling, and probably local elevation of temperature,—yet no one will pretend to say that inflammation exists; at least, if it does, it is not of the kind which we ordinarily understand by the term *ovaritis*. Where, then, is the difference? What constitutes inflammation in the one case which does not exist in the other? And what grounds have we for saying that the state which I have described is not an inflammatory one?

This is a difficult question to answer, and the more we think upon it the more, I believe, shall we be inclined to admit that with the single exception of *pain* and *tenderness* there is absolutely no sign or symptom

by which you can distinguish between the two. But, then, the very fact of the existence of pain implies something that is abnormal, for I may take it for granted that the performance of normal, healthy ovulation is a process which is perfectly free from pain. Upon what, then, does this pain depend? If we can determine this we shall probably have settled the question as to what is meant by the term *ovaritis*. In the first place, let me say that a distinction must be made between *pain* and *tenderness*. I have many times examined women during menstruation for the single purpose of ascertaining whether or not the ovary is *tender* at that time, and in *no* case in which I have been able to reach it with the finger per vaginam have I found it other than tender, even in persons who made no complaint whatever of *pain*, and in whom menstruation from beginning to end was performed in a perfectly healthy and natural manner. Tenderness, therefore, we may take for granted, is a usual condition of the ovary during ovulation. But, then, this completes the signs of the so-called inflammation; it is the "missing link" which unites a normal to an abnormal condition—only that we find it convenient in practice to limit the latter term to those cases in which *pain* as well as tenderness is present; that is, cases in which pain exists and is perceived by the patient independently of tenderness, which is only discovered by touch. There is this further difference, moreover, that, admitting the fact of tenderness as a usual result of ovulation, its occurrence is limited entirely to the time of ovulation: when that is over, all tenderness disappears. This also I have noted in the

cases I have examined; whereas, in the cases of so-called ovaritis, tenderness to touch remains as a constant quality, and pain, independently of touch, is superadded to it.

Is it, then, incorrect to assume that in the great majority of cases of ovarian inflammation, this morbid condition is the consequence of abnormal ovulation? No doubt you may get inflammation quite independently of ovulation as a cause—for instance, as in the testicle so in the ovary, inflammation may result directly from a gonorrhœa. This is not uncommon, and it is a form which is usually very amenable to treatment. Again, ovaritis may occur as a consequence of acute menstrual suppression from cold, and is a far more serious affair. Lastly, the most severe of all forms of ovaritis is that which occurs now and then in the course of parturition. I have met with instances of all these forms of the disease, and have, therefore, no doubt about their existence. In one of the cases which occurred after labor the inflammation ran a most rapid course, ending in abscess, to which the patient finally succumbed. But, while admitting all these varieties, I nevertheless believe that by far the larger number of cases of ovaritis are due, in the first instance, to some abnormal discharge of the ovarian functions, and I ground this opinion upon the following facts and arguments:

In the first place, it is consistent with analogy, and is borne out by reference to the pathological history of other organs, to believe, that perverted physiological action is a fertile source of disease.

Secondly, in the great majority of the cases of ovari-

tis, there is no history either of gonorrhœa, or of acute menstrual suppression, or of parturition, which can be referred to as a starting-point.

Again, ovaritis never occurs, at least I never met with or heard of a case, after the climacteric period or before puberty, that is to say, it seldom or never occurs before or after the establishment of the ovarian function of ovulation. This fact seems to me to imply that, inasmuch as the disease in question is met with only during menstrual life—in other words, during the performance of the function of ovulation—therefore it is highly probable that in some way or other it is connected with functional activity. I have noticed further, that women who are married and have large families seldom or never suffer from ovaritis; but that, on the contrary, its frequency is in inverse proportion to the number of pregnancies, being much more frequent in those who have few or no children than in those who have many; and further, that it is most frequent of all in the unmarried between the ages of 30 and 35, and in the married but sterile between the ages of 20 and 30. What inference, then, can be drawn from these simple facts? The more common explanation of the last mentioned, which is found in books, is, that in the married of this class the sterility results from the ovaritis—and this no doubt is so far true; but then this only removes the question one point farther back, because we are still confronted with the inquiry, What is the cause of the ovaritis? Obviously, the cause of the inflammation *is the* TRUE *cause* of the sterility. The explanation which I venture to offer is, that it is

caused by some flaw in the process of ovulation—a flaw which hinders the development of healthy ova, and which, at the same time, in some way leads to inflammation of the ovary: the non-development of healthy ova would in itself be a sufficient cause of sterility. We have already seen that even in ordinary, normal, and healthy ovulation, the condition of that part of the ovary whence the ovule is to escape is such that it is difficult if not impossible to distinguish it from an inflammation. But, in the usual course of things all this activity, and, if I may so say, this capacity for mischief, subsides by the happy and timely termination of the process, in the rupture of the ovisac and the escape of the ovum, while, at the same time, and by the same process, the vessels of the part are relieved by a slight but effective hæmorrhage. This explanation is compatible also with the other facts I have mentioned, viz., that ovaritis is more common in the unmarried of a certain age; more uncommon in the married who have large families; and that its frequency in the married is inversely to the frequency of pregnancy; because the mere fact of frequent pregnancy in the married is, so far as the woman is concerned, evidence of normal healthy ovulation, and, according to the view I am advocating, this is the best guarantee against ovaritis,* while in those who, being married, are seldom pregnant, it is fair to assume that

* Reference to my own cases—and it is from my own experience only that I speak—demonstrates conclusively to my mind, that frequent gestation is in some way a guarantee against ovarian inflammation; and I can explain it in no other way than by supposing that in them the ovarian function is healthily performed, and *therefore* there is no ground, as it were, for inflammation.

defective ovulation may at least have something to do with it. Lastly, in the unmarried, especially those of the ages I have specified, we know that in a highly civilized and luxurious age, and among a population of the lower class, who are very much given to habits of self-indulgence, errors in ovulation, arising not a little from moral, or perhaps I ought rather to say from immoral causes, are very apt to occur, and if they *do* occur, I believe, as I have said, that inflammation, or what we term inflammation, is very likely to result from it.

But, if this be granted, important though it is as a pathological fact in the clinical history of this affection, it hardly covers all the ground, for it scarcely touches the *root* of the matter. It may be said, of course, admitting the fact of the defective ovulation as a principal cause of ovaritis, the question remains as to what is the exact nature of this defect? And this is of prime importance; because, obviously, if the disease is to be at all amenable to treatment; if we are to treat these cases upon any sound and scientifically exact system of therapeutics, it will not be enough merely to recognize the disease as one of inflammation and to seek to combat that alone; we must try to go deeper into the matter, and to discover that upon which the inflammation depends: in other words, we must endeavor to find out the cause and character of the defective ovulation, and we must try to restore healthy ovarian action. In what, then, may this defect consist? Let me say at once that I am now in the land of speculation, and should wish therefore that what I say should be

rigidly criticised, and, so far as is possible, tested by careful clinical observation and experience.

Hitherto I have dealt only, or chiefly, with facts, and I challenge any one to dispute them: now I court inquiry, and shall be thankful to any one for facts or arguments in proof or disproof of my opinion. What we especially want in order to clear up this most interesting question—for its interest is far greater than the mere existence or non-existence of inflammation, it involves also, as we have seen, the vitally important question of sterility—what we want, I say, is careful, accurate, and minutely recorded histories of cases of ovarian life, if I may so term it, together with exact microscopic examination of the ovaries after death. And here I would say, in passing, that when I speak of a *history of ovarian life*, I mean a complete biographical sketch, as it were, of the ovular life of the patient. We should note every minute detail and particular of menstruation, including the occurrences of the few days preceding the menstrual discharge; and in noting these facts, we should all the while have our mental gaze steadfastly fixed upon the ovary, as the central point in the menstrual system, the mainspring which sets the machine in motion. At the same time, while inquiring into the mode in which its function is performed, we should keep steadily in view the process which is going on in it, and the relation which exists between the ovary and the uterus on the one hand and its anatomical connections, especially through the nervous arrangements, with other and more distant parts.

We are apt, I fear, in our gynæcological studies, espe

cially in all that relates to menstruation, to pay too much attention to the uterus and too little to the ovary. The uterus is so accessible to observation that it is no wonder our attention is diverted from the main point and fixed upon the subsidiary organ; but we should do well to get into the habit of regarding the uterus as a species of coquette with whom we are not to flirt, in the face of the more serious work which we have to do.

But, to revert to the question as to the possible or probable nature of that defect in the process of ovulation which is the starting-point of an inflammation, or at least of such a hyperæmic condition of the organ as to occasion all that train of symptoms which is usually attributed to inflammation, I have already stated that in the process of ovulation the Graafian follicle, with its contained ovum, gradually works its way from the more central portion of the ovary to some point on the surface whence it may escape; having arrived there in due course of its maturation, the outer covering bursts, the ovum escapes into the Fallopian tube or oviduct, the blood-vessels, which up to this point have been enormously increased in size and number, are now relieved, and they speedily return to their wonted quietude until their services are again called into requisition. It will be remembered, too, that the ovary has a free and an attached surface; by the latter it adheres, as it were, to the posterior aspect of the broad ligament. Its free surface is probably about four-fifth of the whole superficies of the organ, so that, we see, there is about one-fifth of the ovary, perhaps more, which is not available for the purpose of its function, because from this surface no ova can escape.

Now, we do not know why, or rather we cannot explain exactly how, it comes to pass that ova should, as a rule, make their way to the free surface whence they may escape; but there is almost no rule without its exceptions, even in physiology, and we may well ask how it would fare with the ovary if, instead of going to the free surface, an ovum were to attempt to make its début at the attached border. How are the vessels, *then* to be relieved? What can the ovary effect to quiet the local excitement? One of two courses, we may suppose, will be taken; either the ovum will die, the follicle gradually shrink, and the vessels return to their normal state, or else the now morbid action will go on increasing, and may lead to disease in various forms, the very mildest of which will be a condition such as is described by the term *ovaritis*. This may, perhaps, be one method by which ovulation may be defective and an inflammation result.

But we can readily imagine, also, that there may be other methods similar in kind, but differing in detail, by which the same result may be brought about. I believe that there are constitutional or diathetic conditions which at times seriously hinder the due performance of the ovarian functions. At the present time, for instance, I have a patient under my care, who, having menstruated regularly and properly for two years, from nineteen to twenty-one, was seized with a severe attack of rheumatic fever, after which the catamenia ceased for five years entirely. They then returned, and for two years continued with more or less regularity, but scantily, and always with pain; in these respects dif-

fering from what they were before the rheumatic attack. On examination I found the left ovary very tender, but little if at all enlarged; the right could not be felt. Pain was constant during and before the catamenia. Here it seems evident that the constitutional state interfered so seriously with the ovarian functions that they have never since been properly performed.

In another case, which has quite lately been under my care, the patient was twenty-three years of age, and for many years past, indeed almost since the first establishment of puberty, she had been subject to pain in the right groin, which was always worse during and for a few days before the catamenia; the discharge was profuse. For a year previous to my seeing her the pain in the ovarian region had been much worse, and for the last six months it had quite unfitted her for any occupation. She had been treated for ovaritis by a very distinguished provincial physician, and on examination there could be no doubt that that was a correct diagnosis. The right ovary was plainly to be felt; it was very tender, but not much enlarged. On inquiring more minutely into the history, I found that five and a half years before, she took a long walk one evening, the weather at the time being cold and damp, and menstruation having been on her for two days. That night she felt feverish; the catamenia ceased; and in the morning she was unable to move, owing to the pain in the right groin. After this the catamenia were absent for six months. They then recurred, but irregularly, and always with severe pain. As a child, she had been subject to strumous abscesses, and she had most un-

mistakable evidence of the strumous diathesis. Before I saw her almost everything had been tried, but with only a partial measure of success. I was so struck with the very decidedly strumous appearance of the patient, that I determined to administer only constitutional remedies and to disregard the local ailment. I accordingly gave her cod-liver oil and bromide of iron. In three weeks' time she was easier than she had been for months, and the next catamenial period was passed in comparative ease. From that time she has gone on steadily improving, and in a few weeks I hope to hear that she is perfectly well.

Now, the chief points to be noted in such a case as this are, first, the strongly marked diathetic condition; secondly, the existence of pain almost from the commencement of menstruation, and that too in the situation of one ovary; thirdly, the aggravation of this, together with menstrual suppression and subsequent irregularity, following exposure to cold; lastly —and the bearing of this is important, not only as confirming the accuracy of the original diagnosis, but also as indicating the general principle of therapeutics —the only remedies which proved of the slightest avail were such as aimed at the constitutional taint. From all which, I think we are justified in assuming that we had here to deal with a case of strumous inflammation of the ovary, or, I might say, a case of strumous ovulation.

I might multiply examples of this kind, in illustration of the proposition that constitutional or diathetic conditions are capable of seriously interfering with

healthy ovulation, and that, making use, as it were, of the follicular vascularity, they give rise to inflammatory states of the ovary which can only be successfully combated by constitutional treatment. The experience of others will, I have no doubt, furnish them with examples of this sort. We all know, for instance, how tuberculosis interferes with ovulation. In the early stage of pulmonary phthisis, menorrhagia, both in time and quantity, is of frequent occurrence, and I have no doubt that this is due to excessive ovarian activity, or, as we might term it, to tubercular ovulation.

I have elsewhere advocated the great importance of giving heed to diathetic tendencies in the treatment of disease, especially in regard to the diseases of children; and although in adult life diathesis becomes of less importance, apparently because the vital force seems, as it were, to over-ride and to conquer constitutional defect, yet in many cases this is not so, and if we would be successful in therapeutics we must recognize this peculiarity. I am satisfied that where it does exist, no treatment which is directed merely to any local state will be of the least avail. We must take a more comprehensive grasp of the whole condition, or we shall miss the mark we aim at. And when we reflect for a while upon the meaning of the term *diathesis*, and endeavor to take in *all* that it implies, we must, I think, see that though sometimes the constitutional evil will be concentrated, as it were, with especial malignity upon some one organ or structure, yet that it will assuredly exercise a certain influence upon the whole nutritional activity, and the entire functional energy of the body.

In the syphilitic diathesis, for instance, every single vital act is performed under the influence of the master poison. Every secretion carries the virus; all nutrition, all repair, is governed by its influence. The very fact that these diathetic states—struma, tuberculosis, and syphilis—are so strongly hereditary, proves how dominant they are. But if this be so, surely those operations in the body which depend upon, or are at least always accompanied by, excessive vascularity, will be pre-eminently subject to the operation of this law; and there is, perhaps, none of which this can be more truly said than of the function of ovulation.

I have said, then, I think, enough to show that the performance of ovulation is governed by local conditions, and by constitutional peculiarity, in such a way as that it may give rise to an inflammation due simply to functional defect—thus illustrating the intimate relation which exists between physiological action and pathological process.

The following details of a case of ovaritis will serve to illustrate the leading features of that disease: A lady, thirty-nine years of age, has been married seventeen years, and has had but one child, ten years ago. During the greater part of her married life she has suffered more or less pain, described vaguely as being somewhere about the pelvis. Menstruation was always excessive, but has been much more so since she married, and at times it has amounted to a severe hæmorrhage. On questioning her closely, it appears that the pain has always been worse in the left ovarian region; and though seldom absolutely free from pain there, it is a

good deal aggravated a few days before menstruation begins. It is described "as though something were gradually filling-in that situation; it gets heavier and heavier, and remains so during the first day of the period, but as soon as the discharge becomes very free, relief is obtained." The pain seldom or never goes down the leg, indeed is not felt lower than the ovary, but it appears to go through towards the sciatic notch, and most of all upwards, exactly in the direction of the spermatic plexus of nerves: this is constant and uniform. There is always tenderness on deep pressure, both internally and externally, and this also causes the pain to shoot upwards. There is generally pain in both breasts, but it is certainly greatest in the *right*. For years she has been subjected to a great deal of treatment, but it has always been directed to the uterus, and has consisted chiefly of leeches to the cervix, the application of caustics to the same place, and abundant vaginal injections. I need not say that the result has been anything but satisfactory; it could hardly indeed have been otherwise.

The points to be noted here are, first, the systematic occurrence of menorrhagia. I have explained how in ordinary healthy ovulation, according to a well-established law, the vascular activity in the ovary leads, through the influence of the vaso-motor system, to dilatation of the uterine blood-vessels in the fundus and upper part of the body of the uterus—the parts supplied by the same plexus of nerves as supply the ovary—and so occasions menstruation. If this takes place in healthy ovulation, morbid ovulation, such as is characterized by

excess of ovarian activity or ovarian vascularity, will probably lead to excess also in menstruation; thus it is that I explain *that* symptom in the case just related. The next point to note is the occurrence of only one impregnation during a married life of seventeen years, the husband being perfectly healthy, and the wife also, to all outward appearance. What became of all the ova that escaped during those years? The answer is, that many probably perished as a consequence of morbid ovulation; menorrhagia itself would be one bar to impregnation, by preventing coitus until after the ovum had escaped altogether in the menstrual discharge; the ovarian life of this lady was fatal to the occurrence of pregnancy. A third and most important point to note, is the *exact* seat and character of the pain: it was always most severe over the spot occupied by the ovary; from that point it was referred through to the back of the hip, in about the situation of the left sacro-iliac synchondrosis—just, in fact, where the left broad ligament joins the pelvic wall, and where, therefore, the ovarian nerves enter the broad ligament to join the ovary; thence it ascended exactly in the course of the spermatic plexus, namely, upwards in the direction of the renal region.

Now, by such symptoms as these (there will be others, of course, of less importance), I believe we may invariably diagnose this condition, and I know of none others which are reliable, nor any affection presenting symptoms with which it can be confounded. Morbid conditions of the broad ligament might, perhaps, in some respects resemble it, but the pain of the latter goes downwards instead of upwards, following the

course of the sacral nerves; and, moreover, there are symptoms and local conditions peculiar to affections of the broad ligament which are wanting in those of the ovary, and *vice versâ*.

But I have already written at too great length, and the time has come when I must bring those remarks to a close. I can but express my regret at having been able to consider so very few of the morbid conditions of the ovary which might, perhaps, have been discussed with much profit and advantage. In particular, I should have been glad to consider some of the more important organic diseases of the ovary, in their pathological aspects, especially those of a cystic character, for I think I could have shown that most of these are the consequence of perverted physiological action. My difficulty in compassing what I wanted has not arisen from any lack of material, but rather from an inability, I might say the impossibility, of crowding into a communication of this kind even the leading features of the more important ovarian diseases; I have preferred rather to consider *few* than many subjects, and to take such as serve best, in my judgment, to illustrate the *principles* of ovarian pathology; hoping, thereby, to suggest some thoughts which may be useful and interesting, and by which some may, perhaps, be enabled to treat, more successfully than they have hitherto done, a class of cases which often presents the greatest difficulty in practice, about which I believe more mistakes are made than with any others, and from which, if successful, we shall deservedly earn the gratitude of our patients, and the pleasure which arises from a duty well done.

A CASE OF CHRONIC INVERSION OF THE UTERUS OF SIX YEARS' STANDING, SUCCESSFULLY REDUCED.*

BY PROF. JAMES P. WHITE, M.D., Buffalo, N. Y.

MRS. H., wife, aged 35, native of New Bedford, first menstruated at her thirteenth year. She married at fourteen, and has given birth as follows: the first, fourteen years after marriage; the second, eighteen months after the first. She was attended in her last confinement, six years ago, by an irregular practitioner. After the delivery of the child the medical attendant left the patient for two hours, and on his return proceeded to remove the placenta in a very rough and hurried manner. For three weeks convalescence proceeded as usual; she was then taken with profuse hemorrhage. The latter continued in varying quantity and intervals for several weeks, when the family physician was called. Upon examination he diagnosticated uterine polypus, and a surgeon was summoned to remove it. Accepting and confirming the opinion of the attending physician, the operation was immediately undertaken. The wire of the écraseur was with some difficulty applied about the pedicle, but upon making traction it parted. Upon close inspection after the accident, it was ascertained that the case was one of uterine inversion, originally partial, but rendered complete by the previous manipulation. Nothing further was done at the time. June, 1872, Dr. George F. Hough, of New Bedford, was

* Reported by George H. Bixby, M.D., Boston, Mass.

called. Dr. H. found the patient confined to her sofa, where she had been almost continuously since her last confinement. She was thin and chlorotic; menstruation had been regular as to time, but profuse. She suffered from frequent attacks of hemorrhage in the interval, which were provoked by exertions as slight as that of walking across the room.

Frequently slight hemorrhages continued through the entire interval of menstruation; at other times there was a complete absence of the same. A vaginal examination revealed the following:—External genitals normal; within the vagina a round, regular, conical body, more or less movable, and constricted at its superior extremity. Upon the application of the usual diagnostic signs, Dr. Hough pronounced the case one of chronic inversion of the uterus. Not feeling quite sure of his diagnosis, Dr. Johnson, of New Bedford, was called in consultation. Dr. Hough's opinion was confirmed by Dr. J. In June, 1872, Dr. Hough consulted Prof. James P. White, of Buffalo, by letter, and later, Dr. White was called to see the case. On the sixteenth of May, 1872, an examination was undertaken by Dr. White, in the presence and with the assistance of the following gentlemen: Drs. Mason, of Norwich, Ct., Professor of Physiology in the Buffalo Medical College; Hough, Johnson, Hooper, Vermyne and Hayes, of New Bedford, and Bixby, of Boston. Artificial teeth removed and urine drawn; etherization commenced by Prof. Mason. When completely anæsthetized, the patient was placed upon the back across the bed with the pelvis near one side, in a favorable

position to allow the lower extremities to be flexed and rest in the laps of two seated assistants. By palpations the uterine tumor in the superpubic region was found wanting. The excessive emaciation of the patient rendered this point easily demonstrable. By the vagina, the finger came in contact with a smooth, round, cone-shaped body, more or less movable, and constricted at its upper extremity. By the sound, a complete culde-sac was found encircling the entire constricted portion. By recto-vesical exploration, no interposing tumor was found; consequently the finger in the rectum came in contact with the sound in the bladder. The diagnosis having been fully determined as chronic inversion of the uterus, the operation for its reduction was undertaken as follows: Prof. White assumed the kneeling posture before the patient, and between the two seated assistants. The left hand, well lubricated, was carefully introduced into the vagina, and the fingers slowly insinuated under and about the mass. While the latter was sustained by the palm of the hand, the constricted portion was embraced by the thumb and finger from opposing sides. With the right hand Dr. White's "Egg-beater"—uterine repositor *—was introduced into the vagina, its concave extremity placed against the fundus or cone of the tumor, and its spring-end rested against the chest of the operator. This done, the right hand, now free, was employed for making counter-pressure above the pubes, or for any other desired purpose.

* A full description of the Uterine Repositor, illustrated with plates, will be found in the *American Journal of Medical Sciences* for April, 1872, and Buffalo *Medical Journal* for May, 1872.

Gentle but unyielding pressure, rendered equable and manageable by the action of the spring, was continued without any variation for thirty minutes, little more force being exerted than that required to compress the spring.

Thirty minutes after the commencement of the operation: Patient in good condition; hemorrhage insignificant; tumor in vagina still firm; constriction unyielding. One hour from commencement of the operation: Hemorrhage insignificant; tumor more soft; a tendency to collapse, manifested by retarded respiration and pulse, was combated by the injection of an ounce of clear brandy in the rectum, to which the heart's action promptly responded. The "Egg-beater repositor" was now continued, its action varied by a slow to-and-fro motion of the body upon the spring. One and a half hours: The patient bears the operation well; hemorrhage insignificant; pulse somewhat accelerated; tumor more soft and compressible; a large-size gum-elastic rectal bougie substituted for "Egg-beater." Two hours and ten minutes: Under the pressure of the bougie and manipulation with the fingers, the constriction suddenly relaxed, and the organ assumed its normal position. The patient rallied from the anæsthesia in less than a quarter of an hour. Reaction took place slowly. Notwithstanding this prolonged manipulation, neither the vagina nor perinæum were in any way injured. Dr. Hough thus writes in regard to the subsequent condition of the patient: "The day after the operation there were symptoms of metritis, which rapidly disappeared under appropriate treatment. There

were no bad symptoms following the operation, but two weeks after she suffered from a slight attack of pneumonia, from exposure to a draft of cold air at night. One month after the operation: She has sat up, has a good appetite, sleeps well, and gains strength daily; vaginal examination revealed the uterus in a normal position."

ON PROLAPSE OF THE UMBILICAL CORD, ITS CAUSE AND TREATMENT.

[BY GEO. J. ENGELMANN, A.M., M.D., St. Louis, Mo.,
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INTRODUCTION.

THE subject of prolapse of the cord is of as great an importance to the practical obstetrician as it is of interest to the scientific accoucheur; its cause and treatment have as yet not been clearly defined. Though the literature devoted to this point is most extensive, the conclusions reached are by no means satisfactory, the results obtained by various authors differing in a number of points, and the cause of this disagreement seems to me to lie in the lack of sufficiently extensive and carefully compiled statistics.

Upon the continent of North America this dystocia claims less attention than it does in Europe, where the

deformed pelvis, which I look upon as the main cause of prolapse of the cord, is by far more frequent; fortunately for our people they do not suffer from the wretched conditions which so often affect the frame of women of the lower classes in Europe—food poor and scanty, mostly vegetable, tenements narrow and close, with a damp climate, such as England and the North of Germany offer.

In German hospital and policlinical (city poor) practice, prolapse is of comparatively frequent occurrence, and the rather unsatisfactory and superficial way in which the subject has so far been treated, must lead to the favorable reception of an investigation based upon such extensive and valuable materials as that collected in the annals of the Berlin Lying-in House, which my worthy teacher and friend, Prof. Martin, the chief of that institution, so kindly placed at my disposal. The large number of cases—the largest at the command of any one author—the careful notes, and the exact and complete measurements, permit the investigation of this question in a much more precise and methodical way than has yet been possible, and promise a satisfactory solution of the doubtful points.

I deem it of prime importance carefully to consider the conditions under which the results here given have been obtained, and to gain a thorough knowledge of the material upon which our investigation is based; this consists of the cases of prolapse of the funis observed in the royal Lying-in Hospital of the University of Berlin, and the policlinical (out-door) department of that institution from October, 1858, to August, 1871,

two classes of cases between which we must carefully distinguish.

The records of the 63 *cases observed in the Lying-in House* are alone perfect in all their details, and decisive for all points under consideration. With the exception of 13 cases of most abnormal and complex labor, transported *inter partum* from the city into the institution, these cases have been conscientiously observed from beginning to end; careful measurements of the pelvis were made in every case, and the treatment was conducted upon scientific principles throughout.

Our out-door (policlinical) *cases*, on the contrary, were observed and treated under less favorable circumstances. They are difficult or prolonged cases of labor among the poor of the city, to which the despairing midwife summons the aid of the Lying-in House staff. It is of necessity only at a later stage of parturition that these cases come under observation, mostly when the prolapse of the funis has already taken place, sometimes even after it has ceased to pulsate, so that they are but imperfectly recorded. Among these out-door cases we find notes upon 302 prolapses; though the number of cases is large, they can aid us in solving but a few of the questions we propose to enter upon, such as the relative frequency of prolapse among primiparæ (I.p.) and multiparæ (M.p.), or the position of the child. Of these 302 out-door cases 98, however, have been carefully observed from beginning to end and measurements made, so that they may be considered equivalent to those observed in the Lying-in House, and have been classed together with them, making the

number of our prolapse cases with pelves measured, and deliveries carefully recorded, as high as 160.*

As far as possible I shall refer to the total 365 cases from the Lying-in House and out-door department combined; this would be, as I have already mentioned with regard to the relative frequency of prolapse among I.p. and M.p., the position of the fœtus, etc.

With regard to treatment and prognosis the results achieved in the Lying-in House and in the out-door department must be considered separately, the conditions under which the obstetrician labored being so very different.

A.—FREQUENCY OF PROLAPSE.

However many obstetricians have given us their experience with regard to prolapse of the funis, the data we find as to the frequency of its occurrence vary very much, as it is natural that they should, being dependent upon country, climate, and class of population.

The highest per cent. is that given by Michaelis, who finds that the Lying-in Institution of Kiel, which is supplied from a country where the rachitic pelvis abounds, produced 27 prolapses among 2,400 deliveries—1 to 90; Scanzoni cites 178,043 cases, collected from the publications of a large number of obstetricians, among which 699 cases of prolapse occurred—1 prolapse to 254 deliveries. As it is customary that the statements and figures of one authority, whether right or wrong, are

Table I., containing the pelvic measurements and condensed history of these 160 cases, will appear at the close of our article, in a later number of the *American Journal of Obstetrics*.

faithfully copied in each successive work, and translated from language to language, we find about the same statement made by Saxtorph, who gives 480 to 116,272 =1 in 243, and Churchill, who finds 816 examples of prolapsed funis among 188,730 cases, or 1 to 231½. These are gathered from the obstetricians of all countries, the British having one prolapse to 232½ cases of labor; the French, 1 in 373; the German, 1 to 262⅔.

Boivin finds but one prolapse to 521 cases.

All these calculations, even if based upon large numbers, are exceedingly superficial, and of value only so far as they approximately give us the relative frequency of the prolapse in lying-in institutions; and I myself am also unfortunately compelled to confine my calculations to the Lying-in Hospital, as we have no control over the relative number of normal deliveries to which the out-door cases of prolapse might be referred.

I must simply state that, among the 5,900 deliveries observed in the Berlin Lying-in Hospital within the last twelve years, were 63 cases of prolapse of the funis, one prolapse to 94 deliveries, 1.07 per cent., a frequency which is exceeded only by the Lying-in Hospital of Kiel, the Rotunda in Dublin giving but 1 to 168.

Even if we disregard the 13 cases which were brought *inter partum* to the Lying-in Hospital for more serious complication, 50 cases of prolapse still remain—1 to 118, or 0.85 per cent.—a ratio similar to that found by Nägele—1 to 120.

Should we desire to make general deductions, a wide margin must of course be given, in the consideration of these figures, to social and geographical conditions, to

the characteristics of the various countries and climates, and, above all, to the class of the population among whom the statistics are collected.

As I have already stated, the prolapse is much more rare in this country, as well as among the higher classes —the better housed and fed abroad—where disease deforming the pelvis, above all rachitis, seldom occurs: where we rarely find the flabby condition of the abdominal walls, or the early escape of the liquor amnii so frequent among hard-working women, as the poorer of the Germans are. The class of women which frequent Lying-in Houses, often such as have before suffered from complicated labor, naturally make the frequency of prolapse in such institutions much greater than it *is in* general practice. On the contrary, the fact that there is a very large proportion of I.p. confined there, has no influence upon these figures, as we shall hereafter see, notwithstanding that great stress has been laid upon this point by many authorities.

We must, in short, seek the true proportion between the various extremes given.

TABLE II.—RELATIVE FREQUENCY OF THE VARIOUS PRESENTATIONS.

Presentations.	Lying-in House		Out-door cases.		Total.		
	No.	p. c.	No.	p. c.	No.	p. c.	
Vertex	35	55.5	167	55.2	202	55.3	208 head presentations, 57 p. c.
Face	..		3	1.0	3	0.8	
Forehead	1	1.6	2	0.6	3	0.8	
Breech	2	3.0	8	2.5	10	2.7	
Foot	16	25.4	53	18.0	69	19.0	157 head presentations, 43 p. c.
Transverse	4	6.4	43	14.0	47	12.9	
Shoulder	5	8.0	26	8.6	31	8.5	
	63		302		365		

B. CAUSES OF PROLAPSE.

I. PRESENTATIONS OF THE FŒTAL PARTS.

A.—Head Presentation.—The head presented in 208 of the total number of 365 cases of prolapse, in 202 the vertex presented, so that we see the number of these in excess of all other presentations combined. Although the prolapse is more frequently found complicating vertex presentations than any other, this is true only so far as absolute numbers go; comparatively speaking, the prolapse but rarely occurs in this presentation, for among normal deliveries we find the vertex presenting in 94 per cent. of the cases, whilst deliveries complicated with prolapse give us but 55 per cent. of vertex presentations; exactly what theory would lead us to expect, as the sufficiently resistant, well-rounded form of the presenting head fits upon the expanding os in its entire circumference, and closes it more perfectly than any other of the fœtal parts, provided the conditions of the pelvis be approximately normal.

Not so the *presenting face* (face and forehead presentation which usually emerge into face, considered together). We find 6 such cases recorded—one face presentation among every 61 cases of prolapse of the funis, while under ordinary circumstances the face presentations are much more rare, not over 1 in 170, which would naturally lead us to suppose that face presentations tend toward causing prolapse of the funis. Yet this is not so; it is not the face presentation as such, it is the deformed pelvis which so frequently brings about

a face presentation that we must look upon as causing the prolapse. In 5 of these 6 face presentations we have distortion of the maternal pelvis; of the sixth no record is given, so that this also may have been deformed.

B.—Other Presentations.—So much for head presentation; that all other presentations—perfect breech presentations excepted—should tend more to prolapse of the funis is but natural, as size and shape of the presenting part prevents its thorough adaptation to the lower segment of the womb, thus leaving an open space through which the funis readily glides; moreover, in all these presentations the funis lies nearer the os.

We need but refer to our table to see that facts verify these theoretical deductions, as 43 per cent. of the total number of cases of prolapse here recorded come under the latter class, while under normal condition at most but 6 per cent. of the children are delivered in one of these presentations, so that malpositions, as we might almost call them, are 7 times more frequent among cases complicated with prolapse.

Breech Presentations.—Of all these presentations, so far contrasted *in toto* with the head presentation, the breech presentation is least often complicated with prolapse. The sum total of our cases giving us not more than one breech presentation to every 36 cases of prolapse—which but little exceeds the normal ratio—and seems but natural when we consider that size and shape of the breech, so similar to the cranium, permit a suitable configuration of the lower segment of the uterus.

Foot Presentations.—It is far different with the nearly allied foot presentations, the irregular small parts

which first press downward through the yielding os do not permit the close adaptation of the cervix, and we find this presentation most frequently complicated with prolapse, yet I may incidentally add, it is fortunately in this very case that the prolapse is least dangerous; were this not so, foot presentations must be the terror of obstetricians; with but 2.7 per cent. of breech presentations we find 19 per cent. of foot presentations among our cases of prolapse. In the Lying-in Hospital they even reach 25.4 per cent. of all cases, much more than in the out-door department; in the former the number of in-door patients under treatment has been comparatively large—and the longitudinal position of the fœtus as produced by the normal action of a healthy strong uterus naturally predominates.

Transverse Presentations.—In the out-door department, where we deal more largely with medical practice, the number of foot presentations (presentations in the normal axis of the uterus) is smaller, only 18 per cent., the number of transverse position larger, 14 per cent. to 6.4 per cent. in the Lying-in Hospital; this is due mainly to the laxity of the tissues, uterus, and abdominal wall in multiparæ; not so much to distortion of the pelvis.

Of the total number of prolapses 12.9 per cent. occurred in transverse positions (47 cases—28 of the I. Class—the head of the fœtus in the left side of the mother; 19 of the II. Class, the head of the fœtus in the mother's right side).

Shoulder Presentations.—Shoulder presentations, which are almost identical with transverse positions as a cause of prolapse, in so far as in both a presenting

part, which closes the os, is lacking, constitute 8.5 per cent. of our cases—equally distributed in the Lying-in Hospital and out-door department.

Summing up, we see that among head presentations the prolapse of the funis rarely complicates vertex presentations, but is frequently found with face presentations, caused, however, as I have proved, more by the deformed pelvis than the face presentation; as such breech presentations also are but rarely complicated with prolapse, transverse positions and shoulder presentations much more commonly, and foot presentations oftener than any other.

II. FŒTAL APPENDAGES.

Having seen what share the fœtus in its various presentations has in favoring or causing the prolapse, we shall now consider the fœtal appendages in their casual relations; but in order that any results shall be as positive and as minutely exact as thorough notes enable me to give upon other points, I must here confine myself to much smaller numbers.

1. *Placenta.*—Thus the place of insertion of the placenta is given in but 35 cases, in 16 of which it was found low down in the uterus—*i.e.*, I consider all such cases as adherent unusually near the os, in which the rupture in the membranes is less than 4 centimetres distant from the margin of the placenta. Among these I have not enumerated the extreme cases in which the placenta presents; of such, 15 were under treatment—giving us one case of *placenta prævia* among every 24 cases of prolapse, an unusual frequency; but disregarding these and confining ourselves to the other 35

cases, it is certainly most striking that in 16 the adhesion of the placenta should have been so near the os, an uncommon occurrence, as in the very large number of autopsies upon women during gestation and shortly after confinement, which I have either witnessed or myself performed, I have but rarely observed these conditions; I have almost always found the seat of the placenta toward the fundus usually upon the posterior wall of the uterus, more often to the right than to the left.

That this unusual location of the placenta favors the prolapse of the cord seems evident; but the reason of this is not, as the authorities state, because it brings the insertion of the cord so much nearer the os; the reason is a totally different one—it is the passive, mechanical action of the large, though yielding mass of the placenta in preventing the normal course of the presenting part through the pelvic canal, and in making the close adaptation of the lower segment of the uterus to the fœtal head impossible. I have laid some stress upon this point, as it is new, and I deem it of considerable importance, certainly theoretically very interesting; at all events, I trust I have said enough to stimulate farther observation and investigation.

In cases of placenta prævia, complicated with prolapse of the funis, the prolapse becomes of secondary importance, the dangers threatening the life of the mother here claiming our attention; yet I may state that the placenta presenting the difficulties before mentioned, caused by its insertion upon the inferior zone of the uterus, are greatly augmented, and in addition we have the insertion of the funis so near the os, that the prolapse is made still easier.

2. *Funis.*—Unfortunately, little attention has been paid to the placental *insertion of the funis*, but among the few cases noted we find two in which the cord was attached to the lower margin of the placenta, the latter being in both cases situated near the internal os, and to these conspiring causes we should be led to attribute the prolapse, did we not find by far more serious complications in the one case (Lying-in Hospital, 20) in a deformed pelvis; in the other (Lying-in Hospital, 34) a shoulder presentation, both of which I consider as most important and primary causes of the prolapse.

It is not alone an analysis of the cases I find recorded, a comparatively small number, but above all a careful consideration of the various points involved, which convince me that the insertion of the funis upon or near the lower margin of the placenta is a matter of very little bearing on the subject before us, notwithstanding that most authorities, each copying his predecessor, consider it a complication very favorable to the occurrence of prolapse.

In the same way a great deal of stress is generally laid upon the *length of the funis*, with a vague idea, which seems sufficiently natural, that the longer the cord, the more readily will it come down.

Length of the funis in 92 cases.

In 20 cases, less than 56 c.m.
" 72 " more than 56 c.m.
" 37 " betw. 56 and 70 c.m.
" 35 " over 70 c.m.
Average length, 65 c.m.

We have the length of the cord in 92 cases, in which all other data are carefully ascertained, thus giving us not only this one fact which alone is worth very little, but enabling us to decide upon its importance by a comparison with other complications. In 20 of these 92 cases the length of the funis is less than the normal average of 56 c.m.; whilst in the other 72 it is above this, and in 35 of these cases the length is very considerable, over 70 c.m.; so that the average length of the cord in these 92 cases of prolapse is 65 c.m.—9 c.m. longer than the normal average I accept. This is an item which claims a careful consideration, and would seem to be of importance in the question before us. Yet this is not so, and I shall justify this apparently paradoxical assertion by an examination of the extreme cases of very long and very short funis which we find among our cases of prolapse.

I may certainly call a funis of over 80 c.m. very long, of such we have 18; but in 10 of these cases we find a deformed pelvis, and this, as I have repeatedly stated, I consider the primary and pre-eminent cause of the prolapse of the funis; in the other 8 cases in which the prolapse of an uncommonly long cord took place in a normal pelvis, we find in 5 instances footling and cross presentations, which, as we have seen, greatly facilitate the prolapse—only 3 vertex presentations, and even these 3 vertex presentations show other complications which tend very much toward producing a prolapse. In one case we have a very small fœtus; in another, a premature rupture of the membranes while the head was still high in the pelvis, fast upon the brim; and in the third, a

pathological condition of the uterus, as proven by the difficult labors which had preceded; we see that there is not a single instance of a prolapse which can be said to have been caused by an abnormal length of the cord, though this undoubtedly facilitates its occurrence.

To these we must contrast the 6 cases with an unusually short cord, of less than 45 c.m., among which we find 2 normal pelves both with vertex presentations: in one instance the fœtal head remained stationary in the higher strata of the pelvis for some time, which prevented a close adaptation of the cervix, and thus occasioned the prolapse; in the other even a very short cord came down without any serious cause.

This seems to me sufficient to prove, what I am thoroughly convinced of, *i.e.* that great length of the funis is by no reason to be classed among the causes, with a direct bearing upon the prolapse, but that, in connection with other circumstances, it may be looked upon as an item favorable to its occurrence. Although the average length of the funis in cases of prolapse is greater than usual, a short funis is by no means a contra-indication, and an uncommonly long cord will not by itself cause prolapse.

An item which is frequently mentioned in connection with prolapse, is the *coiling of the funis* around the neck of the child; as one of the main reasons for this coiling is an undue length of the cord, which we have seen to be no rare occurrence in prolapse, we may expect to find it more frequently than usual looped around the neck of the fœtus, and this proves to be the case. Coiling of the cord is mentioned in a number of the

Lying-in Hospital cases, but merely mentioned, without farther observations, so that the data are not sufficient for a proper consideration of the subject upon which the opinions of authorities are so divided.

For the study of this point it would be necessary to know from a large number of cases in which a loop of the prolapsed cord was found coiled around the neck of the child, whether this loop was at the placental or at the fœtal end of the funis; this is the all-important point, so far disregarded, which would explain and unite the differing views.

They are in the right who claim that the coiling of the cord prevents prolapse, as it certainly does in a most effectual way (even if other circumstances are favorable) if in a head presentation it is the fœtal end of the cord which coils. So would also the observations of those be proved correct, who maintain that the coiling of the cord favors prolapse, as a long loop of funis remains between neck and navel, in close proximity to the os, and ready to descend if the slightest chance is given when a fold from the placental end of the cord coils around the neck of the child.

3. *Premature Rupture of Membranes.*—A cause which we can discuss with more assurance, and which is not without weight, is the rupture of the membranes at an early period of labor, before the os is well dilated; this tends to prolapse, more especially if it occurs, as was frequently observed in the out-door cases, when the os is scarce permeable to the finger, in the very commencement of labor. Even if the position of the fœtus correspond to the longitudinal axis of the uterus, let it be a

vertex presentation, yet the presenting part is still high up in the pelvis, and the lower segment of the womb so little conformed to it that the amniotic fluid, as it escapes, drags down with it the funis.

The rupture of the membranes is a dangerous moment, even at a time when the os is more fully dilated and the presenting part farther advanced, if the waters are abundant and escape suddenly.

The cause of a premature bursting of the sack will be found either in the severe physical exertion to which women of the working classes are subjected up to the very commencement of labor, so rupturing the membranes by simple mechanical strain, or in chronic affections of the vagina and cervix, which seem to corrode the membranes, as it were, by their secretion and make them less resistant. I have notes upon this point in 128 cases, in 65 of which, over 50 per cent., the waters escaped when the os was not dilated beyond the size of a silver half-dollar, or about 4 c.m., a very rare occurrence in normal labor.

The greater part of these cases naturally belong to the out-door department, where circumstances are so favorable to the occurrence of these accidents.

To review in a few words what has been said about the fœtal appendages as causes of prolapse, we have seen that, disregarding placenta prævia, the adhesion of the placenta to the inferior segment of the uterus—perhaps the insertion of the funis upon the lower margin of the placenta—and an unusual length of the cord, especially when concomitant, may tend to favor the prolapse of the cord, but by no means to cause it directly

more dangerous than any of the circumstances here mentioned, seems to be the rupture of the membranes at an early period of labor.

The causes of prolapse which we have so far discussed, emanating from the fœtus and its appendages, are either secondary or of minor importance; we now come to the *chief and primary causes, due to the maternal parts.*

III. ABNORMITIES OF THE WOMB.

To begin with the less important, I shall first consider abnormities of the shape and position of the womb, as even these are in most cases only secondary changes; as malposition of the uterus as produced by the *venter propendens*, which was observed in a few instances among the M.p. of the poorer classes in the out-door department of the L.-in H. more frequently, in connection with a deformed pelvis.

The venter propendens, and the anteversio uteri gravidi, which mostly go hand in hand, aside from their most frequent cause, a deformed pelvis, in themselves tend to cause prolapse in so far as they favor transverse and shoulder presentations, and even in vertex presentations retard the descent of the head.

The repeated occurrence of the prolapse in the out-door department among multiparæ, with normal pelvis and full-sized fœtus in vertex presentations, proves to us that a flabbiness of the uterus itself, a diminution of its muscular power, may provoke this accident.

They are cases in which the organ has been weakened by frequent child-bearing in laboring women who work to the last; unable to nurse themselves, they barely

keep their bed for a few hours after delivery, and again take up work with a tender, impressible uterus in the very beginning of involution.

So also *uterine diseases*, of which endometritis colli is found most frequently among the out-door cases, destroy the elasticity and muscular contractility of the organ, and render its close adaptation to the presenting part impossible,—the same effect as is produced by weakness or entire cessation of labor-pains.

Labor-pains. One Hundred and Eighteen Cases.

Normal in 62 cases; pathological in 58 cases. Pains weak or ceasing entirely in 40 cases; spasmodic, powerless contractions in 16 cases.

Thus we find that in but 62 of the 118 cases in which the character of the labor-pains is given they were normal, in a few instances of great intensity; the pathological condition of the pains in the other 56 cases was mostly owing to deformed pelvis, malposition of the fœtus, premature rupture of the membranes, or disease of the womb, so that we must consider this as a complication—a concomitant—rarely as a primary cause of prolapse. Equally often with malposition, *an abnormity in shape* of the pregnant uterus is linked with prolapse of the cord; either the loss of the ovoid form by a cross or shoulder presentation, or the unusual expansion of the womb by a plurality of fœtus or hydramnios.

Twin cases are frequently complicated with prolapse; we find 15 upon our records, *i.e.*, 1 twin case among 24

cases of prolapse, whereas the usual ratio is about 1.80.

In three of the four cases of twins treated in the Lying-in Hospital the mother was a lying-in patient; in all four we have a well-formed normal pelvis, without any of the pathological concomitants before mentioned; so that we may look upon the twin fœtus as the uncomplicated cause of prolapse, with the exception of the fourth case of a lying-in patient, in which we have other circumstances favorable to the prolapse in the transverse position of one, and the breech presentation of the other child, and, if we will add in the length of the cords, 70 and 74 c.m. respectively.

Of the eleven twin-births among the out-door cases, only one was observed in a lying-in patient, and but one is complicated with a deformed pelvis; whilst in two instances the cords of both of the twin children prolapsed.

The reason of the tendency to prolapse in twin births lies in the diminished action and power of the uterus, due to its unusual distention; we have in fact a twofold disproportion—on the one side the cavity of the uterus enlarged, on the other the fœtus and its presenting part somewhat smaller than in single births.

All this also holds true for cases of *hydramnios*, in which we have farther complications, in the difficulty with which the presenting head finds its proper position, and in the ample space which the superabundance of amniotic fluid offers to the descent of the specifically heavier funis.

I may, perhaps, add that not unfrequently hydram-

nios is found conjointly with twin fœtus. Unfortunately we have but few cases of hydramnios recorded, as the out-door cases frequently did not come under observation until after the escape of the waters; among the sixty-three cases of prolapse treated in the Lying-in Hospital we have three of hydramnios, but only in one of these cases does the superabundance of amniotic fluid seem to be the only circumstance leading to prolapse (Case 41. Healthy condition of abdominal parietes and of the womb, normal pelvis, vertex presentation of well-developed fœtus, and an umbilical cord of 64 c.m. with normal insertion).

IV. PREMATURE LABOR.

I will finally mention the comparatively frequent occurrence of the prolapse in premature deliveries where both uterus and fœtus are in an undeveloped state, unfit to enter upon the normal relation which they should sustain toward each other; we mostly find a premature rupture of the membranes and malposition of a frequently lifeless fœtus, an interesting fact theoretically, but of little practical importance; thus of the premature births here enumerated, some were in the seventh, one even in the sixth month.

Of the twenty-eight premature labors in which prolapse of the funis occurred, relatively by far the largest number (twelve) were observed in the Lying-in Hospital, which is quite natural, as in many cases premature labor was induced on account of deformed pelvis, giving us a complication of circumstances.

It is in part true of premature deliveries, as we have

seen it to be of so many other complications of labor which have been accused of causing the prolapse of the funis, that in tracing the evil to its origin we find a pathological condition of the osseous part of the pelvic canal as the primary cause of all trouble.

V. PELVIS.

That the pelvis and its abnormal deviations is of the highest importance in establishing our theories with regard to the prolapse, I have made evident enough, and it claims a most thorough and careful consideration, all the more as considerable importance has always been attached to it in its causal relations to the prolapse, but in a vague and careless way—general statements without measurements or numbers to substantiate them. It is owing to the careful records of the Berlin Lying-in Asylum and the exact measurement of the pelvis so conscientiously taken in every single instance, that I am here enabled to deal with facts, and need not limit myself to theories.

The laws here expounded are the well-weighed result of the study of 160 cases of prolapse of the funis, concerning which we have all the desirable data—pelvic dimensions, etc.; 62 of these completely recorded cases were observed in the Lying-in Hospital, the remaining 98 among the out-door cases.

In determining the capacity of the pelvis, its external dimensions are here used, and I must necessarily say a few words in explanation of this, as, unfortunately for child-bearing women, pelvimetry is still in its infancy, and in this country almost untaught; to our

shame be it said, that the average accoucheur is entirely innocent of a science upon which the life of mother or child not unfrequently depend.

The exploration of the pelvic cavity with the finger is the method practised in this country and in England, whenever an attempt is made to ascertain its dimensions, to determine irregularities upon the inner surface, as well as the length of the diagonal conjugate. When properly executed, it gives the skilled examiner, and to him alone, a very good picture of the pelvis; it is rarely definite, and is of little value to others; it cannot be concisely and precisely recorded: very different are the internal post-mortem measurements of the pelvis.

Internal explorations have always been made; but for a classification of the pelvis I have confined myself to external measurements, which can be more thoroughly made and recorded, and afford us a very good estimate of the cavity.

The measurements given are:

1. The distance between the spinæ ilii anteriores superiores, the inferior transverse diameter (inf. transv.) which in the standard pelvis is 25 c.m. or $9\frac{1}{4}''$.

2. The distance between the cristæ ilii at the widest part of the brim, the superior transverse diameter (sup. transv.), in the standard pelvis, 28 c.m. or $10\frac{1}{2}''$.

3. The distance from the processus spinosus of the last lumbar vertebra to the symphysis, the antero-posterior diameter (ant. post.), or external conjugate, 20 c.m. or $7\frac{1}{3}''$.

4. If possible to determine, the diagonal conjugate,

from the pelvic arch to the promontory, is given 13 c.m. or 4¾″.

5. The external oblique diameters, the right from the spina ilii posterior superior of the right side to the spina anterior superior of the left (R. obl.); the left vice versa—22.5 c.m. or 8½″.

6. The distance between both trochanters, 31. c.m. or 11½″.

7. The pelvic circumference, taken beneath the spinæ ilii and above the trochanters, 89 c.m. or 33″.

In order to facilitate a general insight into the question before us, it is necessary to classify the various kinds of malformations we are dealing with, and herein I must follow Michaelis and the German School; it is the only rational and scientific way of elucidating this point; the method in which it is treated by most English authorities, particularly by Ramsbotham, being so

TABLE III.—CLASSIFICATION OF THE PELVIS.

		Antero-post. diam. in c.m.	No.	p.c. of the 160 pelves measured.		p.c. of the contracted pelves.
Normal 65 41.p.c.	16 Moderately enlarged.	above 20		10.		
	49 Standard.	19—20		30.6		
	69 Flattened.	17—19	60	37.5	43.1	72.6
		under 17	9	5.6		
Contracted 95 59 p.c.	23 Simply contracted.	17—19	22	13.7	14.3	24.1
		under 17	1	0.6		
	1 Narrow.			0.6		
	2 Oblique.			1.3		

primitive and confused, that I would needlessly annoy the reader by any reference to them. Reference to Table III. will show my method of classifying pelvic

distortions, but I beg the reader not to remain satisfied with the general distinctions given in this table, but in each individual case to refer to the pelvic measurements in Table I.

Of the 160 pelves, I regard 65 as *normal, i.e.* the external antero-posterior diameter being 19 c.m. or more, the inferior transverse above 25 c.m., the superior transverse above 28 c.m. both oblique 22.5 or over,

TAB. III. a. PELVES CLASSED ACCORDING TO THEIR ANTERO-POSTERIOR DIAMETER.

External antero-posterior diameter in c.m.		No. of pelves.	per cent.	
19 and over	over 20	16	10.0	70 = 43.8 p.c.
	19—20	54	33.8	
Less than 19	17—19	80	50.0	90 = 56.2 p.c.
	less than 17	10	6.2	

and the pelvic circumference 89 c.m.; 16 of these must, however, be grouped separately as *moderately enlarged*, the pelvis æquabiliter justa major, whose antero-posterior is above 20 c.m., with the transverse diameters especially enlarged.

The way in which these moderately enlarged pelves are distributed among our cases of prolapse is characteristic, and I might almost say self-explaining. Only two belonged to primiparæ, in whom we must expect the firmness and elasticity of the tissues to counteract the effect of a very spacious pelvis;—these two exceptional cases were twin births, which affords an explanation of the prolapse; among the remaining 14 cases of multiparæ, many of them having very frequently borne, we mostly find cross and footling presentations; and here we have the simple explanation of the conflicting opinions ex-

pressed by different authors—as is so often the case—both parties are partially right, the error being due to an incomplete study of the subject. If Scanzoni and others consider the moderately enlarged pelvis as a contra-indication to prolapse of the funis, they are right in so far as the preternaturally large, regularly formed pelvis affords the same advantage to the passage of the normal fœtus in a vertex or breech presentation as the standard pelvis (yet it cannot be called a contra-indication) [if there is too great a disproportion between pelvis and cranium, as in cases of premature delivery—or unusually small fœtus and enlarged pelvis]; on the other hand, the contrary opinion, that the moderately enlarged pelvis is one of the causes of prolapse, is justifiable, as in cases of cross and footling presentation, or an unusual extension of the uterine cavity (hydramnios or twins), then it is certainly a circumstance favorable to the occurrence of the prolapse, though I can by no means class it among the causes.

As *standard pelves*, with an antero-posterior diameter between 19 c.m., 20 c.m., other dimensions corresponding, I have enumerated 49—less than a third—31 per cent., and even among these there are some which I have been forced to group under this head by reason of their external dimensions, although I very much suspect some abnormity on account of difficult or lingering labor in the present or previous births; we must let this pass, as it is impossible for me now to determine the cause of the trouble.

2. *Contracted Pelves.*—We now come to the consider-

ation of the largest and most important class, the *contracted pelvis;* and under this general head I place all whose external dimensions are less than those of the standard pelvis, whose antero-posterior is less than 19 c.m., be they distorted or simply (uniformly) contracted.

59 per cent. of the 160 pelves measured are contracted; among those observed in the L-in H., 52 per cent. are contracted (33 among the 62 births), whilst the out-door cases show 63 per cent. of contracted pelves (62 in the 98 deliveries).

Even if we bear in mind that of the 13 cases transported *inter partum*, on account of most complex labor, into the L-in H., most every single one exhibits a highly contracted pelvis; even taking into account that of the out-door measurements, some were merely made on account of an evidently deformed pelvis, nevertheless the number of contracted pelves remains a very large one, which we can only appreciate in recalling to mind the comparatively rare occurrence of the contracted pelvis. Michaelis, in his excellent work on the contracted pelvis, describes 72 cases of this deformity which he has observed among 1,000 deliveries,—Lying-in Hospital deliveries, be it remembered; this gives a contracted pelvis in about 7 per cent. of the cases—6 per cent., if we disregard cases brought *inter partum* into the institution.

Although the Lying-in Hospital of Kiel, which is supplied from a country suffering greatly from rickets, may even show a rather large number of contracted pelves, I think that I am justified in saying that about 7 per cent. of the child-bearing women in the northern part of the European Continent possesses a pelvis

varying so much from the standard as not to permit the ready delivery of a well-developed fœtus at full term.

About the same result is obtained by Dr. C. Martin (*Zur Kenntniss der Engen-Beckens bei Gebärenden*), who finds among 2,034 pelves measured in the Berlin Lying-in Hospital, 135, somewhat less than 7 per cent., with an external antero-posterior of less than 19 c.m. If we add to these the oblique and narrow pelves with an antero-posterior diameter of over 19 c.m., the number of contracted pelves observed in the Berlin L-in H. will also reach 7 per cent.

Notwithstanding the very rare occurrence of this malformation, we have, as our tables show, in labor complicated with prolapse, a contracted pelvis in 59 per cent. of the cases (this gives us one case of prolapse of the funis to every 12 cases of labor complicated with contracted pelvis).

I need say no more; these facts suffice; they conclusively prove the contracted pelvis to be one of the main causes, directly as well as indirectly, of the prolapse; a truth which, though often surmised, is here for the first time proven by the logic of numbers.

According to the dates of the L-in H., the frequency of the prolapses is 16 times greater in the contracted than in the normal pelvis, and it is above all in vertex presentation, as we shall see, that the pathological pelvis asserts itself as a cause of the prolapse.

We have so far only considered the contracted pelvis as contrasted with the standard; but in order to fully understand its bearing upon the dystocia in question—

a purely mechanical one—we must study the *frequency of the various contractions and distortions* to which the pelvis is subject, as the different forms affect the process of parturition in a very different way. Of the 95 contracted pelves, by far the largest number, 69, or 72.6 per cent., are antero-posteriorly contracted, *flattened pelves.* 23, 24.2 per cent., I have called *simple contracted;* these it is often difficult to separate from the flattened pelves, as but few of them are strictly uniformly simple contracted, the diminution in the antero-posterior being usually somewhat more than in the other diameters, and it is owing to this unusual scope which I give the simple contracted pelvis that its numbers here are so large.

The *oblique pelvis* is a rare distortion; and among our number of contracted pelves we have but 2 which are distinctly characterized as such, *i.e.*, which show a considerable difference in the dimensions of their oblique diameters.

In a number of instances I find a lateral dislocation of the promontory noted. This was of course found in the digital exploration of the pelvic canal, made more especially for the determination of the diagonal conjugate; unfortunately the statements are too general, and as the external oblique diameters do not show sufficient variation, I am not justified in placing such pelves among the oblique, but have classed them according to their external diameters, mentioning the dislocation of the promontory.

But one *narrow*—transversely compressed—pelvis was found complicating prolapse; this is clearly marked

as such by the external dimensions, and the conditions of the present as well as the history of previous childbirth prove it to have been a serious obstacle. We have seen that the *flattened pelvis* is for us the most important of the contracted; not only is it the most common of the malformations of the pelvis which complicate prolapse, but also in a general average it is the most frequent of the pathological forms of the pelvis; this was first proved by Michaelis, who finds 70 per cent. of the 72 contracted pelves described by him to be antero-posteriorly contracted; my result is a very similar one. I have shown 72.6 per cent. of the 95 contracted pelves complicated with prolapse to be flattened; I have enumerated as flattened pelves only those which were very decidedly compressed antero-posteriorly, excluding those pelves which, diminished in all diameters, were somewhat more contracted antero-posteriorly, and notwithstanding placed by me among the simple contracted—which in their general features they resemble more than the flattened pelvis. We see that among contracted pelves complicated with prolapse, the per cent. of flattened pelves is greater than ordinary; a fact which readily explains itself, as neither the narrow nor the simple contracted pelvis—provided that the diminution in their diameters is but moderate—cause as much obstruction to the normal descent of the presenting head as an antero-posterior shortening.

Even if the disproportion between the transverse diameters of the fœtal cranium and the conjugate of the pelvis is but slight, the head descends, the vertex presenting as usual, but with its longitudinal diameter

in the transverse of the brim; in this position the head is held fast for some time before entering the cavity of the pelvis; it cannot descend upon the os and the cervix —though its elements be strong and active; cannot adapt itself and closely fit to the fœtal part held fast so high up in the pelvis; the comparatively oval mass of the cranium, placed in the transverse axis of the brim or superior part of the cavity of a flattened pelvis, leaves the sacro-iliac fossæ unoccupied, and this is the locus minoris resistentiæ in which the cord glides down.

By far the larger number—60 of the 69 flattened pelves—have an external antero-posterior diameter of from 17 to 19 c.m.; the remaining 9 are so very much contracted, their antero-posterior being less than 17 c.m., that they lose their importance for the prolapse of the cord—the life of the child being endangered by other and more serious complications. I should like to add, with regard to the *ætiology of the flattened pelvis*, though it is a question more of scientific than of practical importance in this place, that among the 69 antero-posteriorly compressed pelves, in 28 the distortion is clearly the result of rachitis. This leads me to an opinion contrary to the one expressed by Michaelis, who takes the pelvis plana Deventeri to be more common than the pelvis plana rachitica. The 28 flattened pelves which I have called rachitic, are either such as show the characteristics of the rachitic pelvis in a very marked way, or they are cases in which it is especially stated in the history of the mother that in her childhood she suffered from the "English disease," as this affection is popularly termed in the north of Germany.

These 28 cases by no means cover the entire ground, and there is no doubt in my mind but that the greater number of the flattened pelves here observed are the result of rickets, a disease so very common in that portion of Europe, and more especially so among the class of people to whom we owe our cases. I have spoken of the direct relation which the contracted pelvis bears to the prolapse of the funis, and it now devolves upon me to show the effect it has, with regard to the dystocia in question, upon other circumstances connected with the progress of labor—so, first of all, upon the position of the fœtus.

TABLE IV.—DISTRIBUTION OF THE CONTRACTED PELVES AMONG THE PRESENTATIONS.

Presentations.	Normal.		Contracted Pelves.								No. of the Present.	Presentation complicated with contracted pelvis.		
			Flattened Pelves.				Simple Contracted		Narrow.	Oblique.				
			17–19		–17									
	Enlarged +20	Standard 19—20.	Not Rachit.	Rachit.	Not Rachit.	Rachit.	17–19	–17				No.	p. c.	
Vertex	3	26	27	18	3	3	18	1	..	1	98	71	72.5	101 head presentat.; 74 complicated with contracted pelvis; 73.3 p. c. 60 other presentations; 21 complicated with contracted pelvis; 35 p. c.
Forehead..				1					..	..	1	1	100	
Face				1		1			..	..	2	2	100	
Breech	2	2	2						..	..	6	2	33	
Foot, ...	3	13	6	1					1	1	25	9	36	
Transverse.	6	8	1	3	1		4		..	..	23	9	39	
Shoulder ..	2	3			1				..	..	6	1	16.5	
	16	(50)* 49	36	24	5	4	22	1			(161)* 160	95	59	
			60		9									
	65		69				23							
			95						1	2				

Normal, 66; contracted, 95 = total 161.

One normal pelvis being twice counted on account of twin-birth, with prolapse in both cases.

Normal, 65; contracted, 95 = total 160.

3. *Relations of the Pelvis to the Presentation.*—Reference to Table IV. shows us that by far the greater part, 78 per cent., of the contracted pelves occurs in combination with head presentation of the fœtus; transverse shoulder and breech presentations together are found in the remaining 22 per cent. It must be distinctly understood that the cause of this combination is not to be looked for in an overpowering number of head presentations—it is not that we have more head presentations combined with contracted pelves, because we have so many more head presentations. We have seen that a little over half, 57 per cent., of our cases of prolapse were with the head of the fœtus presenting; the other presentations combined, almost equal them in number. If we lay the main stress upon the presentation, we shall find that of the 101 head presentations observed among the 160 measured pelves, 74—73.3 per cent.—occurred in combination with contracted pelves, whilst of the 60 cases of all remaining presentations only 35 per cent. are linked with malformation of the pelvis. I have before shown that the contracted pelvis is found with unusual frequency in cases of prolapse, and we now see that it attains its highest importance as a primary cause of prolapse in head presentations; a fact already known to Michaelis, who was led to the conclusion, by the study of 849 head presentations treated by him, that prolapse of the cord in head presentations was ten times more frequent with contracted than with normal pelves; 7 cases of prolapse having been observed by him among 776 cases of normal pelvis, and 7 among 73 contracted pelves.

Here the distortion of the pelvis is in itself the direct cause of the prolapse; but there are other cases still, in which it tends indirectly to bring about the same mishap. I refer to the venter propendens, to the malpositions and deformities of the uterus which so frequently complicate the contracted pelves, and in themselves again favor the occurrence of the prolapse. The fact that malposition of the fœtus is so frequently engendered by contraction of the pelvis is of no great weight; we should be inclined to lay some stress upon this point, as it gives us a combination of two very important causes of prolapse. Though each is dangerous in itself, when concomitant they lose in effect.

I must here diverge a moment from my subject to establish the point I have just touched upon, a disputed question in which I most thoroughly concur in the views of Michaelis, who says that malpositions of the fœtus are by four times more frequent with contracted than with normal pelves; this I have found to be the case, contrary to the ground held by Naegele, who maintains that such positions are never brought about by distortion of the pelvis.

4. *Influence of the Contracted Pelvis upon the Prolapse in I.p. and M.p.*—We must finally consider the distribution of the contracted pelves in cases of prolapse among primiparæ and multiparæ, as I must here again refute a theory which is quite freely accepted, namely, that the contracted pelvis has but little to do with causing the prolapse of the cord among I.paræ, that it only attains its full importance in this respect upon the advent of the second child.

Now, we naturally inquire, how does this commonly accepted statement harmonize with our data? What are the facts?

					Per cent.				Per cent.
Among	44	I. p.	we find	30 contr. pel.	= 68.2	44	I. p. 30 contr. pel.		= 68.2
"	51	II. p.	"	30 "	= 58.8	116	M. p. 65	"	= 56
"	65	M. p.	"	35 "	= 53.8				

Only 27.5 per cent. of the 160 women in labor (our cases of prolapse with measured pelves) are primiparæ, and upon these come 31.5 per cent. of the contracted pelves, the same quantity which is distributed among a large number of secundiparæ—32 per cent. of the 160 prolapses; and in cases of prolapse among multiparæ in general, the contracted pelvis is still more rare; thus we have malformation of the pelvis in 56 per cent. of all cases of prolapse among multiparæ, whereas of primiparæ 68.2 per cent. are so affected.

(To be continued.)

TRANSLATIONS.

THE DIAGNOSIS OF OVARIAN TUMORS, WITH SPECIAL REFERENCE TO OVARIAN CYSTS.*

By PROF. OTTO SPIEGELBERG, Breslau, Germany.

The two patients, F. and R., whom you saw first at the beginning of the term, and at the operations upon whom you were present, are excellent instances of the difficulties which may attend the diagnosis of ovarian tumors. Let us recapitulate them.

F., an unmarried woman, of 44 years, was sent to us for ovariotomy, with an uncertain diagnosis, that of one physician being ovarian cyst, others considering it disease of the liver with ascites. So far as percussion went the signs of ovarian cyst were present, but the exploring needle gave a doubtful result, in that neither chemical nor microscopical examination of the fluid obtained discovered anything characteristic. Employing, therefore, the rectal examination as lately recommended by Simon, I found a sac of ovoid form pressed in between the posterior surface of the uterus and the promontory of the sacrum, in the walls of which were small secondary cysts, and in which fluctuation produced from outside was clearly perceivable. A broad band connected the tumor with the left broad ligament. On the right there was more free space, but even here the hand could not be pressed up towards the abdominal cavity. The diagnosis was, therefore: segment of a cyst lying posterior to the uterus,

* Translated from the Klinische Vorträge, No. 55, by L. Wheeler, M.D., Worcester, Mass.

either strongly adherent or wedged into the superior strait of the pelvis, and probably springing from the left ovary. Ovariotomy essentially confirmed our diagnosis. We found a bilateral cyst, the left portion with long pedicle reaching far up into the abdominal cavity; the right division smaller, of decidedly more recent growth, coalescing with the left portion and having a short broad pedicle in close proximity to the uterus; adhesions with the uterus and in the right iliac fossa.

The patient R. presented a very large, smooth spherical tumor of uniformly elastic structure, reaching upwards to the epigastrium and laterally into the lumbar regions. Fluctuation was indistinct, and puncture yielded no fluid. The cervix of the uterus was drawn upwards and crowded forward and to the left. Behind the uterus and rather to the left, there was a round smooth segment of the tumor pressed down into the pelvis so deeply and immovably that it was impossible to force the hand by it by way of the rectum. It was therefore impossible to decide whether this tumor, feeling like a soft myoma, was of uterine or extra-uterine origin, and in the latter case, whether it was secondarily attached to the uterus. The decision was all the more impossible from the fact that the fundus of the uterus was not to be felt from the outside. Under these circumstances I determined to make an exploratory incision, since the patient, a young woman, wished by all means to be relieved of her tumor, which incapacitated her for work.

You saw, after the opening of the abdominal cavity, that I was unable to separate the tumor either from the uterus or from the left abdominal wall, *i.e.*, from the parietal peritoneum, and that I was, in consequence, compelled to close the wound, since I could not determine what the difficulties of extirpation *quand même* might be, and during the eight weeks that the patient lived afterwards, we remained in just as great uncertainty as ever as to the origin of the tumor, notwithstanding the frequent examinations made during the secondary illness. When the poor woman finally died of marasmus, following intra-peritoneal

retrovaginal suppuration and the development of phlegmon on the left side, it was difficult, even in the autopsy room, so to separate the foreign mass from the pelvic organs as to be able to demonstrate its sole origin from the uterus, its invasion of the parenchyma of the left broad ligament, and the non-participation of both ovaries.

Cases in which the diagnosis thus perplexes us are by no means very rare. This may seem strange to you in view of the certainty with which the diagnosis of ovarian tumor is made in other cases, and of the superficial examination upon which it is often based.

Many of you may, perhaps, think a certain diagnosis of no great importance, as it is all the same, as regards the treatment to be adopted, whether the patient has a tumor of the ovary or the uterus, there being nothing to be done in either case. Under certain circumstances this may be a proper view, but where a radical cure is demanded of us, and ovariotomy desired, then the diagnosis is the element upon which our answer essentially depends. Indeed it was just these difficulties in the diagnosis of abdominal tumors, and the by no means rarely resulting mistakes in operating, which for years stood in the way of the acceptation of ovariotomy as a legitimate operation.

Let me recapitulate, then, the various methods of examination by means of which you will be able to come to a clear understanding. You will find that in the great majority of cases these difficulties exist not alone in the intricacy of the question at issue, but in the lack of care, as well as knowledge, I am sorry to say, on the part of observers. I shall not, after the manner of books, detail the different signs of ovarian tumors, but will follow rather the course which the physician at the bedside has to take. In this way you will learn essentially all the conditions for which ovarian tumors may be and have been mistaken.

For instance, a patient comes to you who, on account of in-

creased size of the abdomen, with abnormal resistance and various unusual and troublesome symptoms, believes herself to have an ovarian tumor and is suspected by her friends to have one. Here your first task will be to determine whether a tumor exists at all.

You will easily arrive at an affirmative answer to this question when you find a well-defined mass distinctly separated from the neighboring parts. It is very different, however, when the contour is not distinguishable, and palpation is fruitless on account of tenderness, and the tension of the abdominal walls. Here there may be a cyst, but by no means necessarily, for there are two conditions in particular, which, with a superficial examination, so resemble a cyst that they are not rarely mistaken for it, viz.: tympanites and ascites.

The confounding of cyst and ascites is the more frequent error, as would naturally be expected, both tumors being fluid. The mistaking of ovarian cyst for tympanites will appear inexcusable to you, perhaps, but when I tell you that the mistake has happened to men of the greatest experience you may gather therefrom a warning against too severe criticism of the failures of others. Simpson* mentions six cases of incision through the abdominal walls where tympanites only and no tumor was found, and in this connection I might cite the names of Maisonneuve, Lizars, King, Smith, M'Dowell, and Dolhof. I have myself had two cases of tympanites, and a still larger number of pregnancies sent to me for ovariotomy. Indeed the danger of deception is not at all remote, arising mostly, as it does, in the case of hysterical subjects whose distended abdominal walls are so tense and hyperæsthetic as to prevent satisfactory palpation. In such it is impossible to press in the abdominal walls, and change of position causes no alteration of form. Sometimes single muscles, or even *separate* portions of the recti, contract in such a way as to remind one of secondary lobes upon a main

* The Works of Sir J. Y. Simpson, 1872. Vol. iii., p. 426.

tumor. Still, it is easy to recognize the condition if you habituate yourselves to depend entirely on the physical examination, and not allow your judgment to be influenced by the history of the case or the subjective symptoms. For I will say once for all that neither age, the condition of the sexual functions, local sensations, disturbance of the circulation or digestion supply any specific symptoms of ovarian disease. No such disturbance of the general health is peculiar to it. When Spencer Wells speaks of a facies ovarica we are ready to recognize the result of careful observation and rich experience, not, however, to attach value to the symptom.

The presence of tympanites is proved by the absence of fluctuation and the results of percussion, which will give resonance everywhere in place of the flatness which any fluid collection, whether free or encysted, would cause. But beyond this we have a sovereign means of diagnosis by which the condition of things may be demonstrated to the eye, in chloroform narcosis as recommended by Simpson. In this state the muscles relax, the abdomen collapses, so that deep palpation becomes possible. The same result may be more quickly reached, though indeed more roughly, by the following method, which you have seen me employ (it is said to have been first recommended by Roederer), namely, by overcoming the tenseness of the abdominal walls by continuous firm pressure. For this purpose the patient is placed horizontally on the back, with knees drawn up, and instructed to breathe regularly; I then press firmly downwards towards the spine, with both hands laid flat on the abdomen. The walls yielding a little with each expiration, I hold firmly what is thus gained through the pause in respiration and the next inspiration. After several repetitions of this manœuvre all opposition is overcome, and the hand can thoroughly palpate the abdominal and pelvic cavities through the now flaccid walls. By this means I have often proved to physician and patient the groundlessness of their fears.

I must further call your attention to the fact that palpation

may be rendered very difficult by a thick layer of fat in the abdominal walls. Atlee* mentions several cases where such masses of fat have been held for ovarian tumors, where even operation was proposed. Especially at the climacteric age is this collection of fat oftentimes enormous, both in the form of a diffuse layer and, as it now and then appears, isolated lumps about the navel. Such masses are elastic to the touch. The edges fade away in all directions without definite bounds, and percussion causes a trembling, swaying motion which may be mistaken for indistinct fluctuation. The percussion sound is dully tympanitic or entirely flat, since the intestine must be percussed through several inches of fat. Repeated examination, especially exact bimanual examination of the internal genital organs; deep percussion after proper emptying of the intestine; attention to the presence of a general development of fat, rarely present in case of abnormal growths; the possibility of lifting the cushion of fat from the muscular layer beneath; the comparative thinness of the inguinal and lumbar regions, where the fat is always less abundant—attention to these points will suffice to make such cases clear.

The mistaking of ascites for cyst is possible only where fluctuation has shown the presence of fluid; and the distinction is easy where the filled and tense sac can be grasped and moved back and forth under the abdominal walls, or, conversely, where the fluid, being nowhere sharply bounded, can be felt to slop about in the lower portions, and to change its level with every change in position of the patient. Difficulty is met only when the collection has become extensive. A large, simple cyst, or a multiple one, consisting of one large and other smaller members, if the walls be thin and flaccid, has no defined contour, fluctuation is easily produced, and the waves take a long course, so that the existence of cyst walls is not so easy to distinguish. In such

* General and Differential Diagnosis of Ovarian Tumors, etc. Phila., 1873, p. 399.

cases, the following signs must guide you: In ascites you will generally find the abdomen equally prominent on the two sides, the lumbar regions distended, the umbilical relatively flat, while the umbilicus itself is frequently prominent. With cysts, on the other hand, the abdomen is more conical in form, or at least cask-shaped, the umbilicus is relatively higher, and is not unduly prominent. Not infrequently the distention of the abdomen is unequal, one side being more prominent than the other. There is nothing distinctive in enlargement of the veins; they may be swollen in either case, since, on account of the ample connections with the vena cava and porta, any hindrance to the circulation in either vessel causes distention of the abdominal veins. Œdema of the lower extremity is, to be sure, more frequent in ascites, depending generally upon the same cause; still this is a symptom of no real worth, since cysts too may cause œdema of the legs by pressure on the pelvic veins, and conversely ascites may exist without anasarca. The most important distinctions are afforded by palpation and percussion. In ascites the fluid gravitates in every position towards the most dependent part, and the area of flatness on percussion changes with the position of the patient, while with encysted fluid the territories of resonance and flatness remain absolutely or approximatively the same, no matter what position the woman takes. In the dorsal decubitus, then, supposing the fluid to be free, the lumbar regions will be dull, and the umbilicus resonant, and the converse will be true in case of cyst, since those at least which rise above the brim of the pelvis lie against the anterior abdominal wall, crowding the intestines upwards and backwards, whereas, in ascites the bowel floats on the surface of the fluid.

Still, there are various points which may easily deceive. First, it is by no means infrequent in ascites to find the right iliac and even lumbar region tympanitic, on account of the presence of the cæcum, which is often widely distended with gas, is confined in its position by a short mesentery, and is sometimes still farther fixed by abnormal adhesions. Again, we now and then

find a fold of intestine lying in front of the lower anterior border of the tumor, especially when it is narrow below, and this causes a dull tympanitic tone in the hypogastrium. As regards fluctuation I have mentioned its greater distinctness as a rule in ascites, but called your attention also to the fact that it may be equally distinct under favorable circumstances in a cyst; furthermore, when the abdominal walls are thick and fat the fluctuation may be indistinct in ascites, and if the amount of fluid be very considerable it will be uninfluenced by change of position. Here a point in diagnosis may be made use of to which the late Professor Breslau, of Zurich, first called attention, viz.: in a cyst fluctuation ceases at the point when percussion becomes tympanitic (lumbar and epigastric regions), the sac wall affording a complete separation between them; but if the fluid is free in the cavity, if it flows all about among the intestines (ascites), then fluctuation will be felt, even in parts where the intestine gives a tympanitic sound.

An intelligent use of all these signs will sometimes, however, fail to establish a diagnosis when there is excessive distention of the abdomen. The collection of ascitic fluid may be so enormous, the abdominal walls so prominent, that the intestine cannot come in contact with them on account of the insufficient length of mesentery, or the mesentery may be thickened and shortened by disease, so that with only a moderate amount of fluid the intestine cannot reach the anterior wall of the cavity. In such a case you might have flatness on percussion, as with a cyst. Conversely, we meet with ovarian cysts so large that they force their way into every available space, crowding the stomach with folds of small intestine below and behind it into the left arch of the diaphragm, and so compressing the large intestine that it is not discoverable on percussion, when of course there would be flatness or indistinct tympanitis in the lumbar region, as in ascites. It is also not to be lost sight of that a cyst may contain gas, as the result of communication with the intestine, or of decomposition of its contents (after puncture, for instance),

and hence may arise tympanitis of the anterior abdominal wall. Under such embarrassments puncture alone can reveal the truth, and this in the great majority of cases it will do. As you are aware, I hold this to be one of the most valuable aids to diagnosis; and though not entirely devoid of danger, it has this dark side in common with many another diagnostic means. The results of exploratory puncture* have saved us from so many dangerous mistakes that I continue to practise it where I have any doubts, notwithstanding the slight risk. Its importance, the value of the information to be gained by turning it to proper account is, however, in general so little acknowledged (for proof I need only refer to the description of cyst contents given by Spencer Wells in his lately published and excellent book;† and that of Peaslee, in his work,‡ a book fully equal to that last mentioned; or to West, who betrays so slight a knowledge of the subject in his Diseases of Women, that I feel it my duty here to go more into details, especially since it is our clinic, with the assistance of Professor Waldeyer, which has brought the subject to its present degree of perfection.

Puncture may be the means of obtaining most important information, through the partial emptying of the abdomen and the resulting diminished tension of its walls, for it is oftentimes only after this that it is possible to palpate and percuss the contents of the abdomen with any degree of satisfaction; but even after the puncture, if the discharge of fluid has been small, if the tumor has parietal or visceral adhesions, or if it lies deep down in the abdomen, the physical examination may still be without practical results. All the more important, therefore, is the ex-

* Atlee alone of the more recent authors estimates the exploratory puncture at its proper worth, but the description by Drysdale which he gives is not up to the mark of the German researches.

† Diseases of the Ovaries: their Diagnosis and Treatment. London, 1872.

‡ Ovarian Tumors: their Pathology, Diagnosis, and Treatment, especially by Ovariotomy. New York, 1872.

amination of the fluid itself, both chemically and microscopically. Should such examination give a decided result, whether negative or affirmative, it is absolutely reliable against all other symptoms.*

The contents of ovarian cysts vary from a watery light-yellow, clear fluid to a tough, colloid, stringy, dirty-brown or yellowish-green mass. Ascitic fluid is always thin, and comparatively clear. According to Eichwald, two principal sorts of organic substance are found in the cystoma: mucin, the so-called colloid substance, and albumen; but, more particularly, paralbumen, so called by Scherer, of which substance, by the way, the contents of the Graafian follicles is a pure solution (Waldeyer). This latter substance is never found in ascitic fluid, which is poor in solid constituents in general, and, in farther distinction from ovarian fluid, it deposits, as a rule, a copious, delicate coagulum of fibrine. Virchow states † that he has seen the fluid from an ovarian cyst coagulate spontaneously in the air; but he omits to describe the character of the coagulum, whether it extended through the whole fluid, or whether it formed in the usual manner of the coagulum of ascitic fluid. Klob ‡ also mentions spontaneous coagulation of cyst fluid, but gives no particulars. These statements, therefore, to which Spencer Wells probably refers, when he speaks of the presence of fibrinogen in ovarian cysts, cannot invalidate the above-mentioned difference in the chemical constitution of the two fluids.

Far more important than this, however, are the morphological differences upon which I must lay particular stress, in consideration of the false views prevailing in regard to them. (Compare Spencer Wells, pp. 132–133. Schetelig, in Arch. f. Gynäk., i., p. 421.) In ascitic fluid we find the endothelium of

* S. meine Mittheil. im Arch. f. Gynäk., iii., S. 271–82.

† Verhdl. des Ges. f. Geburtsh. zu Berlin, iii., S. 217.

‡ Path. Anat. d. weibl. Sexualorgane, S. 357.

the peritonæum, and wandering cells derived from the latter. In that derived from ovarian cysts we have cylinder epithelium in various states of change, remnants of cells, large fat granules, swollen cells in process of paralbuminous, mucous, or colloid degeneration, and oftentimes well-preserved cylinder cells—and this is the most important element. In addition, there are masses of detritus, crystals of cholesterin; then, too, the products of dermoid formation, now and then red blood-corpuscles, fresh or changed, masses of pigment, and pigment granules. Wandering cells are never found except where suppuration of the cyst-wall has taken place.

Peritoneal fluid, then, supplies the elements which would naturally be expected from a lymph sac; a cyst, on the other hand, epithelial formations. This difference is radical, and when it is clearly present, decisive. Notice the patient F. The cylinder cells were the only result of the microscopical examination, speaking for ovarian cyst, and the operation established its reliability. I have published similar cases in the *Archiv*, and on different occasions have I been able to make a diagnosis of communication between a cyst and the peritoneal cavity, or a complication of cyst and ascites, from the co-existence in the same fluid of lymphoid and epithelial forms.

But you must not forget that the examination is not always easy. If the fluid be thin and clear, it is often necessary to search a long time before finding the characteristic epithelial cells; and since the chemical examination also takes time, it is often several days before a decided result is reached; and, above all, remember that cases occur in which the distinctive features are not discoverable. Where we most need aid, however, in the diagnosis from ascites, the exploratory puncture very seldom leaves us in doubt, and, if certain elements are discovered, is absolutely reliable.

Should this also fail, we have left as a last resource the rectal examination as practised by Simon, which we made use of in the case of F. It often throws light upon the case, and I

will describe it more fully when speaking of the differential diagnosis of the various tumors.*

If in the way described you have convinced yourself that you have a tumor and probably a cyst before you, then you have to assure yourself that it is ovarian, *i.e.*, prove that it emanates from the pelvis and is not of uterine origin. For since tumors of the tube, the parovarium, the broad ligament altogether cannot be differentiated from those of the ovary in that they have the same basis, and as tumors of osseous origin can scarcely be taken into account for reason of their extreme rarity and easy diagnosis, we have really only this one question to settle in case of a tumor of the pelvic organs, viz., whether it is

* In order to make the exploratory puncture more accessible to the practitioner I have placed side by side the constituents of ovarian and ascitic fluids and the necessary steps for showing their presence :—

OVARIAN FLUID.	ASCITIC FLUID.
Color and consistence are in direct ratio; the lighter the one the thinner the other. It is generally a cloudy, whitish-brown or greenish-yellow thick fluid mass (like barley water), with a sp. gr. of 1018–24 or higher.	Commonly a light-yellow, thin, clear fluid, slightly sticky. Specific gravity, 1010–15.
Chemical Constituents.	*Chemical Constituents.*
Mucin (Colloidstoff, Schleimpepton), albumen, and particularly paralbumen (metalbumen albumenpepton).	Fibrin; a delicate jelly-like coagulum forms after 12 to 48 hours' exposure to the air—very characteristic.
Microscopical Constituents.	*Microscopical Constituents.*
Cells of cylinder epithelium (more important than anything else); remnants of the same; colloid spheres (swollen cells undergoing mucous degeneration), frequently cholesterin crystals, red blood corpuscles and blood pigment, and in case of suppuration on inner surface of cyst, pus cells.	Amœboid corpuscles and pavement epithelium, both in abundance, especially the latter.

The fluid of enlarged Graafian follicles may very closely resemble that of ascites; it is clear and pure, with few morphological elements, but besides

uterine or ovarian, and in fact most errors are founded on this very point.

That a tumor is of pelvic origin you will learn by the vaginal and bimanual examination; you will be able, in general, to reach a segment of it and determine its relation to the pelvic organs as regards position, connection, and mobility. Should you succeed in separating uterus and tumor, which it is usually possible to do with the hand, it is a most valuable point gained, for in this case the tumor is in all probability ovarian. The position of the uterus in relation to a tumor unconnected with it is of not the least importance, for, as I have elsewhere (Mon. f. Geburtsk., xiv., S. 218) shown, this is entirely arbitrary. As a rule, in disease as in health, the uterus lies anteriorly to the ovary, and it is not rare to find it crowded downwards by the tumor, even prolapsed or strongly anteverted or flexed, if the collum too strongly opposes the descent. It is not rare either to find the body of the uterus crowded to one side, and lateroverted or flexed, or the whole organ lies outside the median line. If the ovary becomes adherent to the uterus in the early stage of disease it draws the latter upwards with it and often stretches it to a considerable length. I have also found the uterus retro-

poorly marked epithelium cells it contains paralbumen. This constituent, so important in the differential diagnosis, is found by the following methods:—

1. The liquid having been allowed to settle in a cool place, a small portion is taken, largely diluted with water, and subjected to the action of a current of carbonic acid (procured by the reaction of hydrochloric acid on marble); paralbumen causes a fine flocculent precipitate.

2. To another portion of the supernatant fluid is added a quantity of absolute alcohol; the precipitate is preserved under alcohol for three days, then filtrated and heated for several hours in distilled water. This redissolves the paralbuminous part of the precipitate. (Metalbumen is distinguished from paralbumen by the action of crystallized sul. magnesia, which will precipitate it from this latter solution.) The paralbumen is precipitated from the aqueous solution by very dilute acetic acid (one drop of the commercial acid to 50 c.c. of distilled water). A surplus of acid redissolves the precipitate, and this solubility in a slight surplus of acid distinguishes it from mucin, which is not thus soluble.

verted and lying behind the cyst, but this is one of the rare positions, Cruveilhier having observed it but three times. It comes to pass in this way: the ovarian tumor rising from the pelvis gains a position in front of the uterus, and then growing rapidly downwards presses the body against the sacrum. The uterus and tumor may, in addition, be firmly adherent. The retroversion may, however, be only apparent, since although the uterus lies behind the ovary, with the fundus against the sacrum, it may be the anterior surface which is directed downwards. This dislocation is produced when, with the uterus firmly adherent, the tumor is turned on its long axis.

Still, it is not always possible to reach the tumor from below; the pedicle may be very long, and folds of intestine may slide down under it toward the pelvic cavity, or again it may be so crowded against the uterus, or so firmly adherent thereto as not to be isolated. On the other hand, it is often the case that the connection of a uterine tumor with the womb is so slight, or at least ill defined, that it is impossible to trace it with certainty. Finally, it now and then happens that peritoneal growths or cysts of the kidney slide down into the brim of the pelvis. Here the important criteria of the ovarian nature of the disease are either absent or unreliable. I have several times presented such cases to you, and you have had opportunity to learn the great difficulty of the diagnosis and the unreliableness of the signs held to be characteristic of the different diseases of this class as they are recounted in the text-books. In some cases, to be sure, these signs are present, often not, however, in complicated ones, and you have seen that it is sometimes utterly impossible to make a diagnosis.

Let us, however, for a few moments give our closer attention to the conditions which experience has shown to be most liable to give rise to errors in diagnosis. As we have already remarked, the principal of these are the uterine tumors, such as pregnancy and the soft, sometimes cystic, myomas, cysts of the kidney and omental and peritoneal growths. Several times I have had preg-

nant patients sent to me with the diagnosis of ovarian cyst, but the reverse has never happened to me. This experience is supported by the existing reports of several cases where ovariotomy was proposed and its execution prevented only by the occurrence of confinement. You will probably think such an error hardly excusable in these days, when auscultation and the bimanual examination have been so perfected. But auscultation does not always give decisive results, and palpation does not always reveal fœtal extremities when they are really there. Notwithstanding, I must say emphatically that such a mistake must not happen, and when it does occur it must be ascribed either to the carelessness or the ignorance of the physician.

When by percussion and external and vaginal palpation you have recognized a tensely elastic, regularly rounded tumor rising from the pelvic cavity, always be suspicious of pregnancy. By means of auscultation you will generally be able to satisfy yourself either positively or negatively in regard to it. If the fœtus is alive you will almost invariably hear the fœtal heart-sounds; should careful observation not discover them, it may be owing to an excessive amount of amniotic fluid, or the child may be dead. In the latter case, the bimanual examination, external and combined, will discover the movable extremities, and ballottement the head or breech. If the amniotic fluid is superabundant or the pregnancy not advanced beyond the middle period, it will be easy to trace the close connection, and the direct continuity of the abdominal tumor with the cervix of the uterus. In the first half of pregnancy the slightly anteverted, more rarely retroverted, uterus can be palpated without difficulty, and in the second half more easily still. Then you will have further signs in the posterior direction of the cervix and the resulting tension on the anterior roof of the vagina. Not less important than either of these symptoms, and deserving of the most careful attention, is the peculiar softness of all the internal genital organs which attends pregnancy, their color, the irregular thickening of the vaginal walls, the beating

and not unfrequently whirring (to the finger what the uterine souffle is to the ear) of the arteries of the anterior and lateral vaginal walls, the uterine souffle itself, the contractions excited by palpation, the cessation of the menses; and then the so-called minor signs ("kleine Zeichen") such as hypertrophy of the abdominal walls, the resulting condition of the navel, which, though nearly smoothed out by the distention of the walls, is still lax and can be drawn out with the fingers, the swelling and secretion of the mammæ, the color of the areola, as well as their glandular and muscular development, and the so frequently occurring chloasma. And though in doubtful cases all these signs, or even the majority of them, are almost never present, and though doubts may still remain after the most careful examination, if pregnancy exist some of its signs will surely be present, enough at least to arouse your suspicions and restrain you from giving a decided opinion or adopting any decided treatment until the progress of events has cleared the obscurity, for which a short interval will always suffice. Conversely, if the results of examination are absolutely negative, pregnancy may be definitely excluded. The same principles hold for the diagnosis of a complication of pregnancy with ovarian tumor.

In the reports of cases where gastrotomy has been done under a false diagnosis, an important part is played by fibromas and myomas of the uterus. For although a solid tumor of the ovary is rare, it happens once in a while, nevertheless. (I have extirpated two such, and have seen, post-mortem, an ovarian fibroma weighing 60 lbs.*) And on the other hand, the soft myomas, such as you saw in the patient R., are often deceptively like cysts, may indeed enclose spaces of more or less extent filled with fluid. We shall not have time to recount the symptoms and signs peculiar to uterine tumors, and which serve to differentiate them from ovarian growths.

In certain cases these signs may all be wanting, whether de-

* Mon. f. Geburtsk., 28 Bd., S. 415.

rived from the history of the case, age of the patient, condition of the menses, pelvic symptoms, form of the belly, position, form and consistence of the tumor, its mobility or relations to surrounding parts; or, if not entirely wanting, they may not be characteristically prominent; complications may conceal them, or, in fact, they may be present under certain circumstances in cases of ovarian tumor, in which, indeed, even the uterine souffle, a valuable and not infrequently found sign of myoma, has been observed. In such cases careful and repeated manual examination will do much toward clearing up doubts, but will, however, now and then leave the man of best experience undecided, so that a certain number of mistakes are excusable when not carried to the point of undertaking an operation, or carrying it through at all hazards, before a full understanding of the case is reached.* In such obscure cases we have at our command two additional methods of advancing our knowledge—the examination per rectum with the half or whole hand, and the exploratory incision.

Simon was the first to teach the proper execution of the first-mentioned method of examining the pelvic and abdominal organs per rectum, and to show how important were the results to be derived from it. Since seeing it practised by Simon himself I have made use of it in several of my own cases, and will add my testimony to its usefulness, with a restriction, however; for you saw that this, too, was unavailing in the case of R. I cannot enter here upon the details of the execution of the method (See Simon's Mitth. in the Arch. für klin. Chirurg.,

* Should Atlee's (l. c., p. 378–79, 464, etc.) statement be proved, that the fluid of ovarian cysts invariably coagulate on exposure to the air, because it contains blood-serum, and farther that it contains spindle-formed fibrous tissue-cells, we should here also be able to establish a diagnosis by puncture. I have never yet met with cysts of this sort where one would feel called on to puncture, and I can therefore express no opinion upon the statement; the matter is, however, the more worthy of farther investigation, as it is just these fibro-cysts of the uterus which are most often mistaken for ovarian cystomas, and are first recognized after incision.

xv., S. 99, and in the Deutsche Klinik, Ur. 46, 1872,)* but will merely mention that the patient must be deeply narcotized and placed in lithotomy position. It should, moreover, be previously explained to the patient that there will be some slight lacerations of the anus, that she will have to keep quiet for a few days, and that she may have trouble with defecation for 10 or 12 days even. In 6 cases in which I have thus far thought this examination called for, I have succeeded in introducing the whole hand without difficulty, and without enlarging the opening farther than by one or two very shallow incisions on the anterior edge of the anus. In one case, that of a young woman who had never been pregnant, the incision tore through the sphincter; the wound healed by granulation, and it was 12 days before continence of fæces was fully re-established. In the other cases, recovery was complete in 3 to 4 days. It is very necessary for the operator to have an exact knowledge of the topography of the pelvic organs before he can feel at home among the contents of the whole pelvis thus presented to the touch; and one who has never practised the method can have no idea how admirably one can feel over the whole contents of the pelvis, and recognize changes in their structure and position. Even proof of the presence of a tumor is often of the greatest value, as you saw in the case of F., where the segment of a tumor, felt per rectum, was decisive of the diagnosis. In some cases you can feel the origin of the tumor directly, and thus be able to make an absolute diagnosis; in others, where the result is negative, you may be able to do the same thing by exclusion. In one case, where there was a difference of opinion between several gentlemen as to the character of an ante-uterine tumor, whether it was ovarian or a fibro-myoma of the uterus, and where I also was in doubt after the usual examination, I easily felt, by this method, the connection of the tumor with the fundus of the uterus, and was enabled to advise against the desired and proposed operation.

But such a result it is possible to obtain only in case you can

* Also Amer. Jour. Obst., Vol. V., Feb., 1873.

isolate the tumor from the uterus, or from the broad ligament (if the tumor extends deep down into the pelvic cavity, you must be able to dislocate it), and it is of the greatest advantage to be able to assist the rectal with the other hand, externally applied. If these conditions are not fulfilled (and where the question is between large ovarian or uterine tumor—they sometimes are not—especially if the rectal hand cannot reach around the growth), then this examination, too, may be ineffectual. Finally, as a last resource, you will have the exploratory incision—*i. e.*, an incision through the abdominal walls, long enough to admit four fingers, or the whole hand, for the purpose of determining the origin of the tumor. Understand, however, that this procedure involves always an intention of extirpation, should the case be found suitable, and that every preparation must be made to proceed with the operation in this event. The incision is, therefore, allowable only when the patient, as well as surgeon, is resolved upon a radical operation. Under certain circumstances, the position may become a difficult one. All is done, of course, with the purpose of removing the tumor, if in any way possible, and still it is necessary not to proceed so far, in a mere investigation, as to produce injuries which will make a radical operation necessary, notwithstanding the case finally proves itself unsuitable. Every point must be weighed, as it presents itself, in order that the decision, whether the operation is to be desisted from or completed, may be reached before injuries are done which endanger the life of the patient without offering the chance of radical cure.

With these cautions, the exploratory incision is not so dangerous as most people think. Of 24 cases, operated on by Spencer Wells, 17 recovered without injury, a few were better after it, 7 died (l. c., p. 464). I have made the exploratory incision 4 times. In one case (Arch. f. Gynäk., i., S. 75 u. 62), ovariotomy followed immediately; in the second (ibid. iii., S. 272), I discovered a retro-peritoneal echinococcus cyst on the left side, excised a portion thereof, and sewed the remainder into the

wound. The patient recovered. The third is the patient R. mentioned at the beginning of the lecture, in whom the incision healed well, but the patient died in two or three months of peritoneal suppuration. The fourth case has not yet been published. It was one of a lady with a firm, irregular tumor, nearly the size of a man's head, on the right side. It could be reached from the vagina, and it was easy to move it in any direction, but it slipped back again immediately into its old position; the uterus was free, the right inguinal region resonant. On the 8th of November, 1870, I made, with the consent of the patient, an exploratory incision, and found a retroperitoneal tumor connected neither with any of the pelvic organs nor with the intestine, belonging probably to the kidney. During the operation, several folds of intestine had made their way through the wound, which was 3½ inches long. These were replaced, and the opening closed. The patient made a relatively speedy recovery, with symptoms of merely local peritonitis, confined to the vicinity of the wound.

During the latter part of the winter following, the tumor increased rapidly in size and the woman died in the summer of 1871. No autopsy was made.

Of the four incisions, then, one led to ovariotomy, one to the cure of an echinococcus, one resulted in no essential injury, while one died of a disease in itself inaccessible (the patient R.). We have thus a result corresponding with that obtained from Spencer Wells's cases, so far as our small number may be compared with his. The result of my incisions, ovariotomy in one and no ovarian tumor in the other three, will prove to you that I did not enter carelessly upon the operation, but employed it only in cases where the diagnosis was exceedingly doubtful. With our present means of diagnosis this operative procedure will become more and more rare; and the fact that Spencer Wells has made exploratory incisions in 24 of 500 cases, while F. Bird, who, in some few published cases of extirpation of the ovary, can refer to 40 unpublished cases of exploratory incisions

and uncompleted ovariotomies (Spencer Wells, l. c., p. 463), may serve as proof of the advance in diagnosis. The development of Simon's method of examination will certainly diminish considerably the number of necessary incisions, but nevertheless the operation will have to be done now and then where the rectal palpation does not furnish conclusive evidence. The same may, to be sure, be said of the exploratory incision, as the case of R. proves, but it at least decides with certainty as to the possibility of removal.

You have now become acquainted with all the means at our disposal for making a differential diagnosis between the different tumors of the pelvic and abdominal cavities, and the general rules you have thus learned are equally applicable to forms of diseases other than those we have mentioned, which may and have been mistaken for ovarian tumors. On this point, then, I may properly restrict myself to a few remarks only. First to be mentioned are the tumors, especially cysts, of the kidneys. I have several times seen a movable kidney mistaken for a small ovarian tumor, and vice versâ; this is the more liable to occur from the fact that movable kidneys are oftener met with in women. Attention to their peculiarities and a careful examination will easily dispel any doubts in such a case. It is a different matter with the extensive degenerations of the kidneys, especially those of cystic nature, echinococci of the same gland and its vicinity, and hydronephrotic sacs. Spencer Wells gives quite a number of observations on this point. Similar diagnostic errors made by Dumreicher, Baum, Schetelig (Arch. f. Gynäk., i.), and myself, with a similar one from Esmarch's Klinik, are referred to in the dissertation of one of my pupils, Dr. Bufe,* and one of my exploratory incisions was made in a case in which the doubt was of this nature.

You will see, then, that such cases are not so very rare and the diagnosis not easy. What there is to say on the last point has

* Diagnost. Irrthümer, welche bei Ovariotomien vorgekommen sind. Breslau, 1867.

been well said by Spencer Wells,* but in the later stages neither the position of the tumor, the relations to it of the intestine or functional disturbances are absolutely to be depended upon. I have shown † elsewhere that a tumor of the kidney may lie in the median line and may reach down into the pelvis like an ovarian tumor, may even have adhesions to the pelvic organs. I have also laid emphasis upon the fact that such a tumor may have intestine over it or by its side, as sometimes happens with ovarian cysts. We may have freedom of motion in a tumor of the kidney, and it may be wanting in one of ovarian growth. The original seat of the disease is available as a diagnostic point only in the first development, and then its discovery is merely accidental. In many cases puncture will give valuable information, through the presence in the fluid obtained of the forms of epithelium peculiar to the ovary or kidney, of the salts and deposits of the urine, urea, and echinococci (which, so far as I know, have never been found in the ovary). But even these results may deceive. The elements of the urine are not always present in cysts of the kidney, and may possibly be present in those of the ovary (Naunyn observed allantoin in such); when echinococci are present they may escape detection, as in the case of exploratory incision which I have narrated; and again in hydronephrotic sacs not only has cholesterin been found, but also the paralbumen peculiar to the ovary (Schetelig, l. c., S. 417). Under such circumstances the rectal examination with the whole hand is of the greatest value, since by its means it is possible to say whether the cyst is of pelvic origin; and this piece of knowledge alone serves to clear up matters immensely, even when the evidence obtained is purely negative.

Tumors of the omentum and the peritonæum can give rise to confusion only when they are of so large a size as to reach down to or into the upper brim of the pelvis, and especially when peritoneal fluid has collected, forming cysts in different parts,

* L. c., p. 222, and Dublin Journ. Med. S., Feb., 1867.

† Arch. f. Gynäk., i., S. 146; iii., S. 272.

as takes place in lymph sarcomas and cancers of the omentum, the intestine and mesentery. The resemblance of such a tumor to a multilocular ovarian cyst may be very deceptive indeed, since they lie like them against the anterior walls of the abdomen, fluctuate indistinctly, and may even be secondarily adherent to the uterus or ovary, while intestinal resonance may be present superiorly and posteriorly. I have reported such a case of sarcoma, which impressed all who examined it as an ovarian cyst, in my Archives, vol. iii., p. 277, and I have seen two other similar cases. Puncture will probably always decide as to the nature of the disease wherever fluid is to be obtained, as in these reported cases where examination proved the lymphatic instead of epithelial character of the fluid, thus setting aside any idea of ovarian cyst. Where no fluid is to be obtained the means already mentioned must be relied upon.

The distended bladder has been punctured in the belief that it was an ovarian cyst, especially in cases of retroversion of the gravid uterus. That this error has befallen men of the first rank will indicate to you the necessity of emptying the bladder before making your examination. Old collections of fæces in the colon have been mistaken for ovarian cysts, and this error is generally favored by the fact that constipation does not always exist in such cases, that diarrhœa is, on the contrary, relatively frequent. But it is unnecessary to speak more in detail of these and other conditions, such as tumors of the liver and spleen, pelvic exudations, hæmometra, etc., which have led to errors in diagnosis, more especially when the tumors were large and complicated with ascites. In so doing I should only repeat what you have heard again and again during the lecture. Careful attention to the general condition of the patient; careful and repeated percussion and palpation of the abdominal and pelvic cavities, keeping always in view the importance of determining the connection or non-connection of the tumor with the pelvic organs, the exploratory puncture where fluctuation is found, the rectal examination with the whole hand, and in case of necessity inci-

sion—these means will be sufficient to establish an accurate diagnosis. In the few cases where this is impossible they will at least place you in a position to deny decidedly the possibility of a diagnosis, and protect you from dangerous operative mistakes. That abdominal and pelvic tumors do occur where a diagnosis is absolutely impossible, the case of the patient R. has shown you, where it was very difficult, even at the autopsy, to find the origin of the tumor.

Finally, a word upon the diagnosis of the character of ovarian cysts, whether uni- or multilocular, whether of the right or left ovary, and whether adherent or not. When marked the multilocular character is easy to distinguish by the uneven, lumpy formation of the surface, the indistinct fluctuation, the discovery of firm masses side by side with larger cystic spaces. Not so the unilocular form; aside from the fact that cysts with a single chamber are quite rare (in twenty-eight cases of ovariotomy I found only six), and the simple form without papillary proliferations still more infrequent (only one out of the six), they may be simulated by those of a really compound structure, such as one large cyst with small, deep-seated secondary sacs, or two large cavities side by side. This point is of no importance as regards the results of extirpation, but is of weight in the prognosis of injection and drainage; and it is just this uncertainty in diagnosis which increases the unpopularity of the latter mode of treatment and gives supporters to ovariotomy. Still less can we arrive at certainty as to the origin of the disease and the location of adhesions. The two ovaries are naturally so close together, and a tumor of one side may so easily obtain a position in the median line, or even on the opposite side, that the question of origin is often a difficult one. If it is possible to learn with certainty on which side the tumor was first felt, in which inguinal region it appeared, that pain was present in a certain spot during its early development, or that one of the thighs was swollen at this time, such information is valuable as indicating with probability—but only with probability—the side to which

the disease belongs. All experienced operators agree, schematic demonstrations to the contrary notwithstanding, that any statement as to adhesions or length of pedicle must be conjecture merely.

UTERINE AND VAGINAL SARCOMA.*

By PROF. OTTO SPIEGELBERG, Breslau, Germany.

THE interest manifested in the above disease since the publication of Professors Gusserow and Hegar, has induced me to report a few cases which have come under my observation, and which are different as to their course and locality from any hitherto published.

I. *Local recurrent spindle-form and round-cell sarcoma* of the uterine cavity, cervix and vagina. Mrs. B., aged 59, had given birth three times and miscarried several times. Her last confinement took place twenty-six years ago. She was in good health until 1869, when menstruation occurred profusely for several periods, then ceased entirely for three months. In July, 1870, she had frequent hemorrhages of variable duration, which induced her to consult her family physician. She subsequently sought my advice. Upon this occasion, with the exception of bearing-down pains, she complained of little else than the symptoms incident to her anæmic condition.

An examination of the abdomen did not reveal anything abnormal. Vaginal examination revealed that cavity filled with old clots. From the strong uterine contractions the fundus was exceedingly firm. The neck of the womb was much distended

* Translated by Dr. J. J. B. Vermyne, New Bedford, Mass., and George Holmes Bixby, M.D., Boston, Mass. From the Archiv für Gyn., B. IV., S. 2, S. 344 1872. Archiv. of Gynæcol., B. I., II. 1870.

and its walls thin. The os uteri was three centimetres in width with sharp edges. From the latter there extruded villous friable masses, interwoven with clotted blood, which extended upward into the internal os, and for about two centimetres along the posterior wall of the uterine cavity, where they resembled placental tissue in a state of decomposition. The body of the womb was retroflexed. I removed from the uterine cavity as much of the mass as I dared to, on account of the hemorrhage which followed; but from the cervical cavity they were entirely removed. I was now able to ascertain that the anterior wall was free. The hemorrhage was arrested by a tampon saturated with liq. ferri susquichlor. Prof. Waldeyer examined the masses removed, and found them to consist of exuberant granulations, containing nucleated cells of different forms, fat and blood-cells and connective tissue.

The internal orifice closed after removing the tampon on the next day, but it soon opened again, with distinct pains and renewed hemorrhage. In order more thoroughly to remove the growths from within the uterine cavity, on the 13th and 14th of November the fundus was dilated with sponge-tents. This procedure was attended with considerable difficulty on account of the retroflexion. On the 15th I succeeded in introducing the index and middle finger into the uterine cavity, and after having fixed the anterior lip with a tenaculum, was enabled with the extremities of the fingers and a curette, to tear off the mass attached to the posterior wall. The uterine wall at the point of attachment was extremely thin. The profuse hemorrhage necessitated the greatest expedition, and doubtless some portions were left behind. The hemorrhage was arrested by liquor. ferri susquichlor. and a tampon to the cervix.

The portions removed were of the consistence of marrow, and were composed of round and spindle-shaped cells. The reaction following the operation was very slight, and the patient, though anæmic, recovered in a comparatively short time. During the following days small particles were freely expelled, and on the

26th I found the womb much smaller, and capable of being elevated. The os internum was closed. The patient continued to improve, and early in December returned to her home in fair health. At the end of the month I was informed by her physician of a return of the hemorrhage, and of the appearance of excrescences extending from the os uteri. On the 19th of January, 1871, she called upon me again. She looked much worse than when she left, and her color was quite cachectic. The os uteri was widely dilated, and there extruded therefrom large villous masses the size of a placenta at the fourth month. The cervical canal was free, the seat of the growths was again in the posterior wall of the uterine cavity, causing slight inversion. The organ was but slightly retroverted, so that the parts in the posterior wall could be easily reached by manipulations above the pubes.

On the 20th of January I again removed, with the finger and curette, as much of the growth as I could, also a piece of its base the size of a silver thaler. Microscopic examination by Prof. Waldeyer revealed a layer of uterine tissue, also round and spindle-form cells. The latter were found between the muscular fibres and also in the lymphatic vessels.

Diagnosis.—Diffuse sarcoma of the uterine cavity, in the form of villi, containing round and spindle-form cells.

The result was the same as after the first operation; the organ diminished in size and the os readily closed.

An injection of chloride of iron, made on the 27th, was well borne. The strength improved a little. On the 1st of February I discovered a small white tubercle at the left side of the anterior lip. At first I took this to be the result of the use of the tenaculum; but on the 6th it had materially increased in size. The fundus of the uterus remained the same. Upon returning to her home in the country she commenced to experience lancinating pains in the back and hypogastrium, which she had never before felt. Fourteen days after the last exploration, I found the entire mucous membrane of the anterior lip and wall

of the cervix covered with granulations and infiltrated. The posterior lip was free. At the left commissure of the labia there was an isolated tumor the size of a filbert, that protruded somewhat over the posterior lip and to a greater extent upon its vaginal connections. A smaller tumor was found on the right of the fornix in close relation with the anterior lip. In consistence both tumors were soft and compressible. There was no swelling of the glands. On the 24th I removed, with knife and scissors, as much of the entire anterior wall of the cervix as I was able to do without injuring the peritoneum and bladder; also the little tumors at the fundus vaginæ, and applied the actual cautery to the wounded surfaces.

Upon examination by Prof. Waldeyer, the portion removed from the anterior cervical wall was everywhere connected by muscular tissue. The surface of the excised part was of a light grayish-red color, nearly homogeneous, and traversed by strands of yellow tissue. Upon cutting off a small portion, it was found to be of a fibrous nature. The microscope showed the same elements as the specimen removed a month before, January 20th, from the posterior wall. The tumors from the fundus vaginæ were of the same nature; glandular elements were entirely absent.

The disease soon recurred at the fornix vaginæ, at the cervix, and in the anterior wall of the uterine cavity. On the 2d of March, eight days after the operation, I found a thickened condition in Douglas's fossa, and a tubercle at the left half of the posterior lip of the os. The latter was widely dilated, and filled with an extruding mass of villous granulations. On the 5th, the entire left portion of the fundus vaginæ was in a state of ulceration, and the posterior wall densely covered with tubercles. There were tubercles present also in the anterior wall, but more isolated. The remaining portion of the anterior wall of the cervix was in a state of ulceration, and the seat of the wound was covered with medullary masses that extended through the patulous internal os, and upon the surface of the anterior wall

of the uterine cavity. A fetid, ichorous discharge escaped, and there were strong febrile symptoms. On the 11th of March the uterine cavity was filled with the morbid masses arising from the anterior wall. The cervix and fundus vaginæ were infiltrated with medullary tubercular matter; the inguinal glands swollen and sensitive.

The patient, aware of the incurability of her disease, returned to her home, where she died on the 25th of April. Post-mortem was not permitted. The following are the characteristic features in the case: Medullary sarcoma of the posterior wall of the uterus; rapid course; recurrence in the same location, arising from the uterine cavity in the form of exuberant villi that had existed for a considerable length of time with only local symptoms, namely, hemorrhage and retroflexion. Removal of excrescences; recurrence, followed by partial inversion of the part diseased. Second operation two months after the first. Ten days after the last, infiltration of the labiæ and the entire anterior wall of the cervix, which, a month later, required a third operation for its removal; also the tubercle in vaginæ, which in the mean time had very much enlarged. No recurrence of the disease in the posterior wall; eight days after, recurrence in the cervix, extending rapidly upon the entire fornix and upon the anterior wall of the uterus—to an extent that rendered further operative interference not to be thought of.

Madame Kaschewarowa-Rudnewa has recently published two cases of sarcoma of the vaginæ, one of which occurred in a slut.* These cases are all that I have been able to find in the literature. From the two cases which I propose to communicate, it will be seen that primary sarcoma of the vagina appears in the same form as in the uterus, namely, as a circumscribed tumor, and subsequently as diffuse infiltration of the mucous membrane. I have no doubt that the first has been mistaken

* Virchow, *Archiv*, B. 54, S. 73-75.

for fibroid growths, and the latter for cancroid degeneration. The two following cases will fully illustrate their mode of development.

a. *Fibro-sarcoma, the size of a walnut, at the inferior portion of the anterior wall of the vagina.—Excision; cure.*

I was consulted by Countess L., residing at L., whither she had been sent for paralysis. She had borne four children. She experienced some weakness of her limbs after the third pregnancy, but the paralysis was not complete until after the fourth confinement, which took place about a year ago. During the last pregnancy she suffered from dysuria, and with frequent desire to micturate. At the delivery the midwife discovered a tumor in the vagina; the latter was no obstruction to labor. For the last six months she has been conscious of a tumor at the introitus vaginæ. She was a frail, delicate woman. Upon examination the uterus was found to be retroflexed, and bound down on the right side by old parametritic exudation. The uterine cavity was extremely sensitive. At the inferior part of the anterior wall of the vagina, on the right and near the median line, I detected a hard, elastic, ovoid tumor the size of a walnut, that extended to the urethral eminence. The latter was movable to a limited degree, and was covered by a smooth, vascular mucous membrane. A few weeks afterward I removed the tumor by incising the mucous membrane in a longitudinal direction. The tumor was easily separated from its loose cellular attachments. The hemorrhage was insignificant, and ceased upon closing the wound. The healing was attended with some suppuration, but was not delayed. Four years have elapsed since the operation, and there has been no return of the disease.

The tumor was examined by Prof. Waldeyer, and was found to have a soft, elastic consistency, and proved to be a fibro-sarcoma; rich blood-vessels and cells. The more dense external layer consisted solely of fibrous tissue, and formed a separate

capsule around the whole. The cells were long, and long spindle-form.

b. *Medullary sarcoma of the inferior portion of the vagina.—Excision; death from phlegmonous inflammation and deep-seated abscess in the thigh.*

Mrs. H., aged fifty-eight; wife of a landed proprietor; married at twenty-two; had never borne children. She had enjoyed fair health, with the exception of a slight leucorrhœa, which commenced at an early age. At forty menstruation ceased, quite suddenly, without any particular disturbance. In her fifty-seventh year she began to have hemorrhages from the genital organs. They appeared slight at first, and at long intervals, but soon after were frequent and more profuse, especially after fatigue. In 1868 she was informed by the physician that she was suffering from spongy growths, which he treated with applications of nitrate of silver. The treatment gave her great pain, but did not arrest the hemorrhage. With the exception of occasional nocturnal pains she felt quite well, and the functions were regularly performed. I first saw her in June, 1868. She was pale, but in other respects looked well. On examination, I found the parts in the vicinity of the introitus vaginæ hard and infiltrated. The labiæ were everted and indurated, and slightly elevated about the level of the healthy parts. The parts were covered with granulations, and bled at the slightest touch. The infiltration, which resembled a superficial cancerous ulcer, occupied the entire left side of the inferior portion of the canal, extending posteriorly to the middle portion of the recto-vaginal wall; anteriorly it was separated from the meatus by a strip of healthy tissue, appearing again in spots in other parts near the urethral opening. From this point it extended to the right side of the vagina, but in less degree than on the opposing side. The inferior parts of the urethra were free, but in the vertical centre of the posterior wall of the vagina I found a flat growth. The vagina was short, apparently

senile; the uterus atrophied. The pelvic organs were free from infiltration, and the inguinal glands were not swollen. On the 22d of June I excised the infiltrated portions, under anæsthesia. It was not difficult to separate accurately the diseased from the surrounding parts, from the fact of their being low down and quite accessible. The hemorrhage was profuse, necessitating the ligation of three vessels on the left side of the introitus. To excise the portion located near the urethral eminence, a catheter was introduced, but of the posterior wall only its mucous membrane was left after removing all the diseased parts. The hemorrhage was controlled by covering the entire surface of the wound with powdered tannin. Examination of the specimen by Prof. Waldeyer revealed a structure of small-cell medullary sarcoma—with the same elements scattered through the healthy tissue. After moderate reaction the wound began to granulate, under the use of injections of carbolic acid. On the eighth day the left inguinal glands became inflamed, and subsequently deep-seated inflammation ensued in the inner surface of the corresponding thigh. The vaginal wound was covered by a gray exudation that secreted thin pus. There were soon evidences of necrosis of the femur. July 11th, a deep-seated abscess was discovered in the thigh, and freely opened. After this there was a decided improvement in the patient's condition, and the surface of wound took on healthy granulations. The abscess in the thigh continued to discharge, and it became necessary to make repeated incisions to favor the exit of pus. This kept the patient weak, but the vaginal wound continued to heal. At the end of the month the wound was entirely healed, but the abscess still discharged; nevertheless, at the urgent request of the patient she was permitted to go home. I learned afterwards from her husband, that a few weeks after her return she died from what would seem to have been thrombus of the femoral veins.

An autopsy was not permitted.

A CONTRIBUTION TO THE ÆTIOLOGY OF UTERINE FLEXIONS BASED ON ANATOMICAL INVESTIGATIONS AND CLINICAL OBSERVATIONS.*

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The ætiology of uterine flexions in its present scientific shape culminates principally in the hitherto undecided contradictory opinions of Rokitansky and Virchow on the point of genetic origin of flexions. The reasons why this dispute, which has lasted over ten years, has not yet been settled are, that the views expressed directly oppose each other, and therefore at once preclude any compromise; that the practical importance of the histological exploration of the uterus has not been sufficiently realized by anatomists, who generally give a mere descriptive account of the organ; and that gynæcologists have been content to adopt these descriptions without special individual investigations, although the subject is not only of the highest ætiological importance, but the exact knowledge of the true state of the case would even annul and invalidate one or the other of the two theories. For some time it has seemed appropriate to me to attempt the reconciliation of the difference of opinion between Rokitansky and Virchow, from the combined standpoint of anatomist and gynæcologist. For this purpose I instituted both histological and macroscopical investigations on the dead subject, and at the same time kept this end in view, during clinical examinations of women with and without genital disease, inasmuch as the exposition of the ætiology of flexions of the uterus necessitates the investigation of numerous other important points besides the histological exploration of the uterine tissue. Before entering on the mode of formation of uterine flexions, it is surely justifiable carefully to consider the normal

* Translated from the "Berlin Beiträge zur Geburtshülfe und Gynäkologie," Vol. 2, part 2, 1873, by Paul F. Munde, M.D., New York.

shape and position of the uterus and its anatomical relations to the neighboring organs, especially as the accounts given thereof in the principal anatomical and practical works are more or less contradictory and unsatisfactory.*

Of all the cavities of the female body none is so variable as that of the pelvis. This variability, however, is not merely an individual one, as in the other cavities of the body, but also, depending as it does on the different conditions incidental to woman of the genital apparatus situated in the pelvis, a temporary one; so that the pelvic organs of the female, according to the period of her life, present a different aspect.†

In order to become acquainted with the topographical conditions of the pelvic organs, we must therefore observe them closely during the three chief phases of female existence—before puberty, during the stage of possible conception, and subsequent to that period. As the anatomical relations of the pelvis in the second phase of female life chiefly interest us here, we will begin with them.

If we open the abdomen of a virgin and seek to gain a view of the cavity of the pelvis,‡ we find the pelvic inlet occupied by coils of the small intestine and the iliac flexure; the latter lies

* Only lately C. Credé, in his "Contributions to the Determination of the Normal Position of the healthy Uterus," Archiv für Gynäkologie, Vol. 1, part 1, 1870, says: "The normal relation of the healthy uterus to the pelvis and the adjacent parts has hitherto not been definitely ascertained. The result of autopsies, the sections of frozen subjects, and the information obtained by the examination of living women, do not coincide."

† The neglect of this view of the case is the reason why a uniform representation of the female pelvic organs could not be obtained by topographical anatomy, whence the complaints of the conflicting results of pelvic examinations (see previous note, and V. Hüter, The Flexions of the Uterus. Leipzig, 1870, page 23).

‡ The brim of the pelvis is higher than in the skeleton, by means of the presence of the psoas and iliacus internus muscles on the wings of the sacrum and the iliac fossa, and therefore also larger and somewhat elevated posteriorly and laterally—a fact already referred to (Berliner Klin. Wochenschrift, 1869, No. 47) while describing the anatomy of the female ureters.

either in the cavity or at the brim of the pelvis, and belongs in the latter case, with its larger circumference, more to the large than the small pelvis. The course of this fold of the large intestine is known to be exceedingly variable; I will only mention here that occasionally its angular deviation reaches to the right side of the pelvis, and with a moderate degree of fulness covers the whole upper entrance to the pelvis. If we now remove the iliac flexure and all the folds of small intestine contained in the small pelvis, we are astonished to see, the bladder and the rectum being entirely empty or but slightly distended, how large a space is left for the intestines in the small pelvis.

If all the coils of intestine have been ligatured or divided at their entrance into the small pelvis, and if the intestinal contents of the small pelvis are then removed, we see the considerable length of the small intestine contained therein. We can best trace it from its termination at the cæcum. The ileum very rarely descends immediately or within a few centimetres distance from the cæcum into the small pelvis; as a rule it forms a large loop above the ileo-cæcal valve and lies in the iliac fossa close to the beginning of the right colon, thence it passes over the terminal line into the small pelvis, descends into Douglas's fossa, and ascends again on the left side. If we develop the folds of small intestine lying in the small pelvis by detaching them from their mesentery, we find that they constitute almost the entire ileum, and measure extended a quarter, third, even half, occasionally more than half of the whole small intestine (exclusive of the duodenum); I have found 140, 230, 325, and 450 centimetres of small intestine in the small pelvis. The length is naturally very variable, as is shown by the preceding figures, and is always dependent, irrespective of the condition of the other pelvic organs, on the contents of the intestine itself. I found the greatest length when the intestine was empty and contracted, as is the case in cholera, carcinoma ventriculi, and phthisis pulmonum. In this case the folds on the right side belonged to the lower, those on the left

side to the upper, half of the ileum. The majority of the folds lay in the posterior portion of the pelvis, between the uterus and broad ligament on the one and the rectum and posterior pelvic wall on the other hand; but few folds lay on and at either side of the urinary bladder. Very rarely do we find a fold of small intestine between the anterior surface of the corpus uteri and the posterior wall of the bladder, as both organs are generally closely approximated.* Although Kiwisch (Klin. Vorträge, Prag, 1849, Bd. II. p. 2, 51) frequently speaks of numerous folds of small intestine surrounding both ovaries in the lower pelvic cavity, the latest reports give a totally different account. According to Luschka † there are usually a few folds in Douglas's fossa, whilst Claudius ‡ considers this the exception. Of late Hüter § has asserted that, although folds of small intestine undoubtedly always surround the fundus and the upper portion of the anterior and posterior uterine surfaces, they do not descend to the bottom of Douglas's fossa, and can therefore not be felt there in the living subject.‖

* Virchow (Ueber die Entstehung der Uterusflexionen, Allgem. Wiener med. Zeitung, 1859, No. 4), Luschka (Die Anatomie des Menschen, Tübingen, 1864, Bd. II., Abth. II. s. 355), and Hodge (On Diseases peculiar to Women, II. Ed., Philadelphia, 1868), on the other hand appear to consider the exception as the rule, and accordingly give corresponding diagrams.

† L.c., p. 360.

‡ Allgem. med. Centralzeitung, 1864, No. 82. § L. c., p. 16.

‖ As regards the latter assertion, I must reply that I have repeatedly succeeded (by verbal communication, also others), particularly when the small intestine contained an abundant quantity of fæces, in distinctly feeling them through the posterior laquear vaginæ, and even in indenting them with my fingers. The reason why the palpation of these intestinal convolutions does not produce gaseous sounds is probably the fact that gas is usually contained more in the upper than in the lower portions of the intestine. At all events, before I became well acquainted with the topographical conditions of the pelvis I have frequently come across the mistaken diagnosis of an ovarian or other tumor, behind the uterus, which was found to have disappeared a day or two later after the administration of laxatives, and thus was proved to be of fæcal origin.

Credé,* on the other hand, does not decide the question whether under normal conditions intestinal convolutions lie in Douglas's fossa or not, although at autopsies he only then found no convolutions in the cavity of Douglas when the rectum was very full, whilst when the latter was empty he could occasionally draw two and three folds out of the fossa. The pelvic sections on frozen subjects made by Pirogoff and Legendre† cannot decide this point, because the bladder and rectum were usually excessively distended and thus left no room for the easily displaceable intestinal convolutions. If we find the bladder and rectum much filled in the dead body, the folds of small intestine will be entirely wanting in the small pelvis, or there will only be a few in the upper lateral portion of the pelvis. A considerable dilatation of the urinary bladder alone will cause the uterus to lie close to the posterior wall of the pelvis, and Douglas's space is then, as it were, suspended—exists no longer.

The cavity of the pelvis, devoid of the small intestine, is for the most part empty, sinistro-posteriorly is the collapsed rectum, and the anterior wall of the pelvis is occupied by the uterus and urinary bladder. The uterus lies close to the bladder, with its fundus inclined anteriorly, generally also laterally, and a little below the plane of the pelvic brim,‡ almost always extra-median,§ sometimes and even more frequently approaching the median line, sometimes the lateral pelvic wall, generally of the right side. If we imagine the cavity of the pelvis to be divided by a sagittal and a frontal plane into four equal por-

* L. c., p. 120.

† Topograph.-anatom. Atlas von W. Braune, Leipzig, 1872.

‡ O. Kohlrausch, zur Anatomie und Physiologie der Becken-organe. Leipzig, 1854, s. 62.

§ Kiwisch (Klin. Vorträge, Prag, 1854, Bd. I., s. 340), Rokitansky (Lehrbuch der pathol. Anatomie, Wien, 1861, Bd. III., s. 456), and Luschka (l. c., s. 357), consider the extra-median position of the uterus to be a congenital anomaly of position. Henle (Handbuch der system Anatomie, Braunschweig, 1862, Bd. II., s. 454) is quite indefinite as regards the position of the uterus. Hüter (l. c., s. 23) gives the uterus an almost central position.

tions, we find the uterus in the right anterior portion generally deviating anteriorly and to the right side of the median line, its long and transverse axes running in an oblique direction, and therefore not coinciding with the corresponding axes of the pelvis, but crossing them at an acute angle. Sagittal and horizontal sections of the pelvis never strike the uterus in its long and transverse axes. The uterus therefore usually stands with its longitudinal axis in the second, with its breadth in the first diagonal axis of the pelvis, so that its fundus points right-anteriorly, its external orifice left-posteriorly, the right border of the uterus right-posteriorly, the left somewhat *left*-anteriorly.*

As the vaginal canal runs in the median line of the pelvis, the lower portion of the uterus in the described position must indent the laquear vaginæ obliquely from above, whereby one lateral laquear, generally the right, becomes narrow and like a mere slit, whilst the other is wide and spherical.

The pelvic contents of the fœtus and new-born infant occupy totally different relations. The small pelvis, particularly, is then still so contracted as not to allow any folds of the small intestine in its cavity;† indeed, not even the urinary bladder and the uterus, which with the distended rectum alone occupy the small pelvis, have quite sufficient room therein, inasmuch as the former projects over the symphysis pubis and touches the anterior abdominal wall, and the upper portion of the latter and the tubes and ovaries are found in the large pelvis. The uterus, which is wedged in and elevated, as it were, between bladder and rectum, here already lies extra-median, with a slight inclination of the fundus anteriorly and to the right side. The iliac flexure generally lies greatly distended over the uterus in

* The embryological investigations of Dohrn, according to which the left duct of Müller lies more anteriorly than the right, in which oblique position both usually unite, support the above assertion.

† Luschka, l. c., p. 9.

the large pelvis.* Once only M. B. Freund † found in a mature female infant 32 days old the iliac flexure in the small pelvis, between the uterus and the bladder, and pushing the former towards the sacrum, whilst A. Steffen‡ has found the S. romanum in the small pelvis both when the rectum descended on the right and on the left side. From the very beginning of extra-uterine life, when the pelvis grows very fast and the regular evacuation of the urine and fæces opens the pelvic cavity to the neighboring organs, portions of the intestine commence descending into the small pelvis. Freund § found in girls 12, 21, and 22 days of age numerous folds of small intestine in Douglas's cul-de-sac.‖

The pelvic relations in senile women are again different. We here rarely find a normal state of the uterus, because generally pathological alterations have changed the position of the pelvic organs. The intestinal contents of the small pelvis are the same as above described, if uterine, ovarian, or other tumors have not displaced them. Besides, the whole iliac flexure is often found, in the small pelvis, covered with folds of small intestine and contiguous to the posterior portion of the left wall of the pelvis (excavatio sacro-iliaca sinistra), and can be exposed to the sight only after the removal of the small intestine from

* Bourvart, De la situation de l'ilique chez le nouveau-né dans ses rapports avec l'établissement d'un anus artificiel. Thèse de Paris, 18. Aôut 1873.

† M. B. Freund, Die Lageentwicklung der Beckenorgane, etc., p. 80. Breslau, 1863.

‡ A. Steffen, Beiträge zur Physiologie und Pathologie des Mastdarms, Jahrbücher für Kinderheilkunde, p. 128. V. Jahrgang, 1872.

§ L. c., p. 93, 94.

‖ The post-mortem examination of a girl of 12 years, who died of variola, showed the following condition: The urinary bladder much distended, reaching almost to the os sacrum; the uterus very small, closely approximating the bladder, and situated to the left of the median line (a rare instance), whilst the rectum descended along the os sacrum on the right side. A terminal fold of the ilium lay in the right side of the small pelvis, and the distended iliac flexure filled its superior portion.

the small pelvis.* Very rarely (only twice) have I found the whole cæcum, with the vermiform process, below the linea terminalis in the small pelvis.

After this description of the general topographical relations of the female pelvis, a close inspection of the embryological conditions of the position and form of the uterus is of great importance in the discussion of uterine flexions. The uterus has been shown to make a similar descent as the ovaries and tubes, which descent is intimately connected with the variations in form and the collapse of the urinary bladder, to the posterior wall of which the uterus is attached. The bladder, changing from the elongated fusiform to the short ovoid shape, and its fundus thus approaching the floor of the pelvis, draws the uterus downward with it. This happens already during the first year of life, for I found the vertex of the bladder in a child of one year no longer projecting over the symphysis. The bladder not alone exerts a decisive influence on the physiological development of the uterine position, but after it has reached its own growth, it also materially influences the topographical condition of the uterus during the whole life.

This relation between the uterus and urinary bladder was first represented by Virchow† in a clear and correct manner, and employed for the ætiology of flexions. He has shown that the cervix uteri is closely and but slightly movably attached to the posterior surface of the bladder. A careful examination proves the cellular tissue connecting the two organs to be firm.‡

*In women in the prime of life, who have had several children, we also almost regularly find the iliac flexure in the small pelvis. Only a short time ago I found, in a woman who died of variola in the seventh month of pregnancy, the whole iliac flexure in the small pelvis, although the lower enlarged segment of the uterus already filled the whole pelvic cavity. I have even witnessed this position of the iliac flexure in the small pelvis in men.

† Transactions of the Obstetrical Society of Berlin, 1849, vol. iv., p. 85. Collected Writings, p. 823. Wiener med. Zeitung, 1859, No. 4, 5, c. l.

‡ Rokitansky (The Uterus and its Flexions. Allgem. Wiener med. Zeitung, 1859, No. 18) and Luschka (Topography of the Female Ureters, Archiv für Gynäkologie, vol. iii., part 3, p. 379), however, assert that the cellular tissue is loose and very yielding.

but little yielding, and plentifully supplied with elastic and diffused organic muscular fibres and sympathetic nerves and microscopical ganglia. It is therefore not quite easy to separate the uterus from the bladder with the fingers or the knife, because the cellular tissue is very firm, and can only be detached in layers. Even in very fat persons there is but little adipose tissue existing in it. This firm layer of cellular tissue extends between the bladder and vagina; the urethra and the vagina are inseparably united and form one single thick wall. The cervix uteri thus accompanies all the daily evolutions of the urinary bladder; it ascends posteriorly with the distention, and descends anteriorly with the collapse, of the bladder. Inasmuch as the cervix is the base of the whole uterus, this applies to the latter as well as to the former.

The uterus is in a much less degree dependent on the rectum, partly because their connection is less intimate and direct, being secured by arched ligaments, and partly because the rectum undergoes less frequent changes of form than the bladder. The plicæ semilunares Douglasii, which contain smooth muscular fibres (m. retractor uteri Luschka), and form the connection between the uterus and the rectum, proceed from the sides of the rectum to the upper part of the cervix uteri, and meet at its posterior surface, immediately below the internal os, forming thus a transverse slightly convex ridge.* As both organs do not cover each other, but lie in the diagonal diameter of the pelvis, it is self-evident that the ligaments which connect them are of unequal length, and that in the usual position of the uterus on the right and of the rectum on the left side, the right sacro-uterine ligament is shorter than the left.† The special position of the cervix is influenced by the distention of the rectum above or below the rectal insertion of the peritonæal duplicature. When the upper portion of the

* Luschka (l. c., p. 360) incorrectly describes this ridge as concave.

† M. B. Freund (l. c., p. 95) has already, by means of measurements, called attention to the unequal length of the semilunar folds.

rectum is filled, whereby the cul-de-sac of Douglas is encroached upon and its folds are stretched, the cervix uteri is pushed directly forwards or simultaneously somewhat downwards, whilst the filling of the lower portion of the rectum will push the cervix forwards and upwards. In any case, a considerable distention of the rectum is required to produce a marked dislocation of the cervix uteri, a dislocation which normally takes place temporarily only during defecation, as the iliac flexure occupies the same place in the chylopoetic as the urinary bladder does in the uropoetic system, namely, that of the real reservoir for the fæces. Long-continued fæcal accumulations in the rectum, so commonly found in habitual obstinate constipation, exert a considerable pathological influence on the position of the uterus, and therefore are an important ætiological point of uterine flexions.

The other peritoneal duplicatures which are supplied with muscular fibres, the round and broad ligaments, are so long and lax that they in no way impede the free mobility of the corpus uteri as long as it does not reach an extreme degree, whilst the cervix uteri is not influenced by them at all, as they are attached only to the body and fundus of the uterus. A great importance has, however, been ascribed to them in determining the position of the uterus generally. Since the time of the Reformation, when anatomy first became a science, the remarkably unequal length of these uterine ligaments was observed, the shorter of which was supposed to possess the power of drawing the uterus with its upper end forwards and to one side.* Subsequently, however, there were plenty of opponents to this view, who denied any influence of these ligaments on the position of the uterus.† The question whether the ligamenta rotunda

* Riolan, Anthopographia, Parisiis, 1626, p. 228. Ant. Molinetti, Dissert. anat. pathol., etc., Venetiis, 1675, c. 12, p. 329. Morgagni Advers. anat. IV., animadv. 25, p. 46, Patavii, 1719.

† Winkler (Demonstrator of Anatomy of Haller), De situ obliquo uteri, Göttingen, 1745, p. 18, § 48.

and lata are the cause of the extra-median position of the uterus is not even settled to-day, and the authors on the subject are divided into two parties. Some, such as Tiedemann,* Klob,† Spiegelberg,‡ Hüter,§ allow that the ligaments exert a greater or less influence on the position of the uterus, while Luschka‖ expresses no opinion whatever on the subject, and Henle¶ considers it doubtful whether the muscular striæ which extend as ligaments from the uterus to the adjacent parts, such as the ligamenta teretia, are intended to fix the organ in its straight position, or whether their contraction does not rather induce flexion. Others again, Brehmental,** Bernutz and Goupil,†† M. B. Freund,‡‡ deny any action of the ligaments on the uterus whatever, and consider their unequal length to be not the cause but the consequence of the extra-median position of the uterus.§§ Freund particularly has demonstrated by numerous embryological investigations, that the extra-median situation of the uterus necessarily results from changes in position of the

* Fr. Tiedemann, Von den Duverney'schen, Bartholin'schen oder Cowper'schen, Drüsen des Weibes und der schiefen Gestaltung und Lage der Gebärmutter, Heidelberg und Leipzig, 1840, p. 34.

† L. c., p. 50.

‡ Spiegelberg (according to Hüter, l. c., p. 19), in a woman 26 years of age, 15 minutes after death by decapitation, has seen the uterus rise from the sacrum and the round ligaments become tense by means of the induced current passed through the womb.

§ L. c., p. 19. ‖ L. c., p. 354 and seq. ¶ L. c., p. 454.

** De obliquitate uteri quoad formam et situm, Bonnæ, 1853, p. 17.

†† Clinique médicale sur les maladies des femmes, Paris, 1862, tome II., p. 538.

‡‡ L. c., p. 76.

§§ In place of the expression, "extra-median position," the term "oblique position, situs obliquus," or "obliquitas uteri quoad situm," was formerly used. Klob (l. c., p. 43 and 44) distinguishes two varieties, one more common, in which the uterine axis is outside of the median line, but runs parallel with the pelvic axis, and the other less frequent, in which the latter is not the case, and both organs cross each other. Both varieties, according to him, are congenital anomalies of position (compare above, p. 7, Note 2).

urinary bladder and the rectum, both of which are of earlier embryological date than the genital canal. Besides, the inefficiency of the round ligament has been proved by Mannel,* who divided them in the dead subject. Without wishing to deprive the ligaments of all value as uterine supports, still their importance seems to me, after the autopsies and clinical observations of a number of years, to have been much overestimated. This much appears certain, that the round ligaments, extending as they do in a large outwardly convex arch from the uterus to their point of insertion in the mons veneris, as well as the broad ligaments, show such a degree of relaxation, that their importance in securing the normal position of the uterus is but a very slight one. Both allow the uterus a large amount of play-room. In connection with the broad ligament, the point has been forgotten that it does not terminate simply at the wall of the pelvis, but that it extends as a wing-shaped process of some breadth into the large pelvis, and terminates there. Hereby the uterus acquires a greater mobility, as the radius around which it can rotate is a large one. Inasmuch as only Henle † mentions this process of the broad ligament, which is the natural continuation of the ala vespertilionis, and is, moreover, a constant anatomical occurrence, I will add a few words on the subject, especially as in some items I differ from Henle. Whilst the larger lower half of the broad ligament, proceeding from the lateral walls of the small pelvis, terminates slightly before the frontal middle of the latter, and its two layers extend to them anteriorly and posteriorly, the upper portion, including the ala vespertilionis, extends along and over the terminal line at a height of 5–6 centimetres (spread out) into the large pelvis. According to Henle, this lateral end of

* Die Tumoren des Douglas'schen Raumes, Marburg, 1864. Martin also, in a lecture on prolapse of the vagina and uterus, held before the Hufelandsche Gesellschaft (Berl. klin. Wochenschrift, 1872, 30) does not consider the round and broad ligaments adapted to the support of the uterus.

† L. c., p. 467.

the free border of the broad ligament, as he calls the process, lies in the superior pelvis, along the iliac artery, above its division into its chief branches, the crural and hypogastric arteries. He calls this portion, which is about two centimetres long, and is situated beyond the infundibulum, "ligamentum infundibulo-pelvicum." My investigations, however, show a different result as regards the course of this lateral termination of the broad ligament. It is a triangular process, which becomes pointed as it proceeds outward, and the shorter side (5–6 centimetres) of which extends from the infundibulum to the terminal line, whilst the two other longer sides are situated in the large pelvis, the lower on the iliac fascia, spreading anteriorly and posteriorly over this fascia as the peritoneum iliacum, and crossing the branches of the iliac artery 2–3 centimetres from the point of entrance of the ureter into the small pelvis,* while the upper border is free, sharp, and slightly concave, and, when extended, measures 8–10–14 centimetres. The whole process extends more outward than backward or upward, and terminates on the right side in the peritonæum of the cæcum, close to the root of the vermiform process, or in the mesenteriolum of the latter, or in the mesentery of the terminal portion of the ileum, on the left side always in the mesocolon of the S. romanum. Generally the process is a little shorter on the left side, and proceeds in a larger arch than on the right. A fitting appellation for this process would be, "plica tubo-iliaca."†

This peritonæal duplicature is also of practical importance. It is, so to speak, the guide which leads the pelveo-peritonitis out of the small into the large pelvis, and in the iliac fossa causes iliac peritonitis. The well-known contractions of the

* Berliner klin. Wochenschrift, 1869, No. 47.

† The infundibulo-ovarian ligament which diverges with the plica tubo-iliaca, is on the other hand a narrow duplicature containing very numerous organic muscular fibres, which extend from the Fallopian tube to the ovary, and, like the other muscular fasciculi scattered throughout the adnexa of the genital apparatus, lie contiguous to and parallel with the capillaries.

broad ligament are thus formed, by means of which the uterus is drawn upward and occasionally so much raised out of the pelvis as to lie close to the cæcum, or descending colon, and be more easily palpable through the abdominal wall than through the vagina.—Of exceeding, hitherto somewhat neglected, interest for the position of the uterus, is the peritonæal duplicature which enfolds the uterus itself. It may not be superfluous to repeat here the course and relations of this duplicature of the peritonæum, since, notwithstanding its unchanging condition, various incorrect accounts are in circulation, and a thorough acquaintance with it alone is capable of sufficiently demonstrating its practical importance, to which Virchow* has already called attention. Although Virchow has repeatedly for the last 20 years given the most definite accounts of the course of the peritonæum, still even in the best text-books entirely incorrect views are to be found. All at present admit that the peritonæum passes in front from the internal os to the bladder.† Widely different are the accounts of the passage of the peritonæum on to the rectum. Henle,‡ by word and diagram, represents the peritonæum as extending to the rectum at about the same height as anteriorly. Luschka§ describes the peritonæum as covering not only the cervix uteri, but also the posterior laquear vaginæ, corresponding to the upper half of the posterior lip of the cervix. According to Virchow the recto-uterine excavation descends quite low behind the cervix uteri, generally to about the region of the vaginal portion, occasionally even

* Allgem. Wiener med. Zeitung, 1859, No. 4.

† I merely wish here to correct a statement made by Klob (l. c., p. 50), that according to Langer the peritonæum extends to the uterus from the posterior surface of the urinary bladder at the lowest point corresponding to the base of the trigonum vesicæ. According to my investigations this is never the case, but the whole trigonum, with a portion of the posterior wall of the bladder, lies on the anterior vaginal wall, so that the anterior laquear vaginæ is found from 1.5–2 cent. above the base of the trigonum, and the bottom of the vesico-uterine excavation is as far as from 4–5 cent. above the trigonum.

‡ L. c., p. 456. § L. c., p. 260.

from 3–4 centimetres lower, so that in the latter case a portion of the vagina is separated from the rectum by a prolongation of Douglas's cul-de-sac. Klob also lets the peritonæum in some cases spread over the posterior fornix of the vagina, whilst Hyrtl* says that it covers the upper portion of the posterior vaginal wall. Hüter† gives two different accounts of the course of the peritonæum, in one of which it is said to reach only to the vagina and in the other to cover the upper portion of the fornix vaginæ. All but Henle, therefore, concur in saying that the peritonæum does not extend to the rectum from the uterus but from the vagina, wherefore the excavation should be called recto-vaginal, as Rokitansky occasionally does,‡ or recto-vagino-uterine. According to my numerous investigations the peritonæum extends to the vaginal wall at a point corresponding to the lower border of the posterior lip of the cervix, generally lower still, as far as below the external os, and even below a horizontal line drawn from the anterior laquear. The distance from the posterior laquear to the bottom of Douglas's cul-de-sac measures 1.5, 2.6 to 3.7 centimetres; in a woman in the seventh month of pregnancy, even 5.8 centimetres.

Of no less importance for the position of the uterus than the knowledge of the extent of the peritonæum is the manner of its attachment and the nature of the subjacent cellular tissue. The uterus, whose cervix is tolerably firmly attached to the posterior vesical wall for the length of 2.5 to 3 cent., must not only follow the motions of the bladder, but must also adapt itself to the latter and lie close to it in accordance with its greater or less degree of distention. That this accommodation of the uterus, which is materially aided by the muscular fibres contained in the pubo-vesico-uterine ligaments, actually takes place, is easily

* J. Hyrtl, Lehrbuch der Anatomie des Menschen. Wien, 1867, p. 719.

† L. c., p. 9 and 12.

‡ Cul-de-sac recto-vaginal. Courty, Traité pratique des maladies de l'utérus, Paris, 1866. C. on p. 11 gives an excellent diagram of the course of the peritonæum about the uterus.

demonstrable in the dead subject, and even in the pelvic organs when they have been removed as a whole from the body. If we inject the bladder, we see how the peritonæum forming the vesico-uterine excavation rises, and the distance between it and the fundus uteri thus diminishes; by largely filling the bladder I could see the excavation gradually rise 1 centimetre. During this experiment we can further observe that the fundus uteri inclines forward and touches the bladder. The uterus therefore closely approaches the bladder when the latter is largely distended, and then lies directly on it with a portion of the body above the internal os; on the other hand, we can frequently see, at autopsies, that when the bladder is empty, strongly contracted and diminished in size, the uterus touches the bladder only in a very slight degree, the vesico-uterine excavation is situated below the internal os, and a portion only of the cervix uteri approaches the posterior surface of the bladder. Thus in the most extreme degree of vesical distention the bottom of the vesico-uterine excavation is not on a level with the internal orifice of the uterus. This relation of accommodation between the uterus and the bladder proves almost *a priori* that the attachment of the peritonæum to the uterus must be of a peculiar kind. Henle * says quite correctly and distinctly, that the connection of the serosa with the muscularis is less firm in front than on the posterior wall, while lately Chrobak † asserts the contrary. From the middle of the vesico-uterine excavation the peritonæum is attached to the uterus for 1–1.5, at most 2 centimetres, in such a manner that it may be separated with the knife, but in the upper part already with some difficulty. The connection here is similar to that between the cervix uteri and the bladder below the internal os. The cellular tissue is very tense, detachable only in layers, and contains but little fat; at the sides of the uterus, however, as far as the inser-

* L. c., p. 456.

† R. Chrobak in the "Handbuch der Lehre von den Geweben," edited by S. Stricker, Leipzig, 1872, Chap. xxxvii., p. 1169.

tion of the round ligament, it can easily be detached; the inseparable connection of the peritonæum with the uterus, according to Henle, forms anteriorly an obtuse angle open above. At the posterior surface of the uterus, the peritonæum is firmly and inseparably attached in its whole breadth to the substance of the uterus from the fundus down to the internal os, whilst from the point where, through the retractor uteri muscle of Luschka, it forms a transverse ridge, it gradually becomes looser and easily detachable towards the bottom of Douglas's fossa. Here the cellular tissue is less dense, contains more fat and especially more blood-vessels.

From this description we infer that the peritoneal covering of the uterus, so far as it is capable of being detached in front, is used during the distention of the bladder as a covering of its increased surface, and that hereby the approximation, already existing by means of the connection of the cervix uteri with the posterior wall of the bladder and by the pubo-vesico-uterine ligament, is augmented. But, while the peritonæum of the uterus in a measure becomes the peritonæum of the bladder, the uterus not only closely approaches the convex posterior surface of the bladder, but the forward inclination of the fundus uteri increases in a corresponding degree.* We thus possess a second important point which exerts a determining influence on the form of the uterus. The peritoneal connection of the corpus uteri with the bladder is therefore of great importance, not only for the position of the uterus but also for its configuration, and particular stress is laid on this point because, as will be explained farther on, it is of special ætiological value for uterine flexions.

The opinions on the shape of the uterus and its manner of development differ somewhat. Some describe the angle formed at the internal os as larger (165°) than others (140°). As I have already mentioned above the uterine curva-

* Virchow, Allg. Wiener med. Zeitung, 1859, No. 4, p. 27.

ture is discernible in new-born female infants, a fact already noticed by Boulard,* Lorain,† Sondry,‡ Goupil§ and Freund, whereas Virchow‖ and Klob¶ deny that the fœtal and infantile uterus possesses any flexion. As far as I am aware, Rokitansky **alone has sought to explain this curvature of the uterus.

According to him, "the dense, firm and mighty mass of cellular tissue which forms the cervical mucous membrane, which is appreciably thicker at the posterior wall and does not terminate at the internal os, but, gradually becoming thinner, extends some distance into the corpus uteri, ascending considerably higher on the posterior surface as a dense submucous cellular layer, is the supporter of the mass of the body of the uterus and the basis of its erect position with a slight anterior inclination." His opinion is, that this layer of cellular tissue forms the bulk of the cervix. Virchow,†† however, particularly as regards the deduction and adaptation made by Rokitansky, does not coincide with this anatomical description, and Henle ‡‡ and Hyrtl,§§

* Boulard, De l'antéflexion (Revue méd.-chir., Juin, 1853, vol. xiii., p. 341) et quelques mots sur l'utérus. Thèse, Paris, 1853.

† Registre des autopsies faites en 1853 à la Maternité.

‡ Quoted by Aran, Leçons sur les maladies de l'utérus. Paris, 1858.

§ Clinique médicale sur les maladies des femmes. Tom. ii. Paris, 1862.

‖ Allgem. Wiener med. Zeitung, 1859, No. 4.

¶ L. c., p. 58.

** L. c., p. 457. Lately in a session of the Obstetrical Society of Leipzig, Nov. 20, 1871 (Archiv für Gynæcol., vol. ii., part ii., p. 312), Hennig, in a paper on the "architectural development of the uterus," expressed the opinion that the shape of the corpus uteri is a consequence of its contents and of the narrow and tortuous genital canal which it has to pass, that is, an heirloom in a Darwinian sense.

†† Klob (l. c., p. 60) makes the inaccurate statement, that Virchow denies the occurrence of a thick submucous stratum under normal conditions. Virchow, however (Ueber die Flexionen des Uterus, Allgem. Wiener med. Zeitung, 1859, No. 21), says: "Towards the mucous membrane the muscular fibres diminish, and we find a distinct, tolerably dense, but normally by no means thick, submucous stratum."

‡‡ L. c., p. 456. §§ L. c., p. 715.

regardless of the anatomical value of this point, make a totally contradictory statement, and actually deny the existence of the submucous cellular layer described by Rokitansky. Others again, such as Luschka,* Klob,† and recently Chrobak,‡ directly support it. The importance of finally settling this anatomical question is evident from the fact that Rokitansky considers the mass of cellular tissue under discussion, in its normal condition, in the light of a framework upon which the remainder of the substance of the uterus is built up, and the direction of which it has to follow, in its pathological state, consequently as the basis for the development of uterine flexions. Considering the intimate relation which in all pathology ætiology holds to therapeutics, the importance of any theory which explains the causal conditions of a disease becomes self-evident. As the treatment not only includes the removal of the causes of the disease, but also has the object to prevent the formation and activity of the morbifacient agent, the more accurately and thoroughly the ætiology of each disease is settled and the more room we find for therapeutical interference, the more important and influential does it become for the treatment of the disease. It became, therefore, absolutely necessary, considering the frequency and the often exceedingly important, troublesome, and annoying consequences of uterine flexions, to institute a special histological exploration of the uterus, which should prove the correctness or incorrectness of Rokitansky's anatomical description, and thereby confirm or refute his theory of the origin of uterine flexions. For that purpose, for some time I made investigations of uteri at different stages of development, from the fœtal to the senile condition, and found that Rokitansky's rep-

* Luschka (l. c., p. 371), adopts Rokitansky's view, and does not show, while quoting it almost verbally, whether he has an opinion of his own on the subject or not.

† Klob, l. c., p. 60, Note, is the only gynæcologist who has made histological investigations directly on this question.

‡ L. c., p. 1178. Likewise most gynæcologists, among others Martin.

resentation of the existence of a strong stratum of cellular tissue, which was supposed to constitute the mucous membrane and its submucous layer, is entirely without foundation. The macroscopic appearance of the uterus already decisively refutes the presence of a submucous layer of cellular tissue, a so-called "tunica nervea," which is found in the whole digestive and respiratory tract and in the urinary bladder. Its object is to act as a loose connective substance between the muscular and mucous coats, and to permit the mucous membrane to become folded and wrinkled, as the functions of the organ to which it belongs may require. It can easily be lifted up and dissected off from the subjacent muscular coat. With the mucous membrane of the uterus the case is different. It is a well-known and generally admitted fact that we can neither lift up nor dissect off the uterine mucous membrane, and that at every such attempt more or less of the muscular coat is removed with it.

If we subject the uterus to a microscopical examination we obtain the constant result, that in all the phases of development of the uterus, the mucous membrane of the whole of its cavity closely adheres to the muscular coat, and directly merges into the latter without any link, the innermost layer of the muscular coat, which consists of strong muscular fasciculi, running in various directions and profusely intersecting each other, does not even stop short at the mucosa, but projects in large bundles to various depths into the mucous membrane, and in adults envelopes the glands situated in the whole thickness of the mucous membrane. Occasionally muscular striæ project so far into the mucous membrane as to reduce the latter to a mere narrow border. We therefore see the mucous membrane merging in unequal thickness into the muscular coat. These microscopical conditions are visible both in the puerperal* and non-puerperal uterus in the most indisputable manner.

* The study of the puerperal uterus in itself necessarily prove that a submucous connective tissue does not exist; how, then, could the former theory

The mucous membrane itself, irrespective of the glands imbedded in it, presents an entirely homogeneous appearance. It consists only of epithelium and a membrana propria. I could not distinguish a basement membrane. The epithelium in the lowest portion of the cervix almost immediately above the external os is the same as in the vagina and on the vaginal portion, tesselated pavement-epithelium, which abruptly changes to short cylinder epithelium at the top of a fold of the mucous membrane.

By far the largest portion of the cervical mucous membrane is therefore supplied with cylinder epithelium.* The membrana propria of the uterine mucous membrane presents at different spots a different aspect. On the vaginal portion, as well as at the lower part of the cervix where, as just stated, tesselated pavement-epithelium exists, it possesses a papillary layer in which various papillæ are discernible. First, as shown by Ulman†, numerous compound papillæ are visible, that is, two or three papillæ possess a mutual papillary basis, or, if you please, one large papilla terminates in two or three points. But "secondary papillæ" are also present, for at the sides of a slender long papilla numerous small papillæ of variable size appear like sprouts. The latter are still visible where cylinder-epithelium exists, but only for a very short distance. The propria of the

have been possible, that after the discharge of the decidua (the hyperplastic mucous membrane), the muscular coat is laid bare? We should then have been obliged to suppose that the thick submucous tissue had been used in the formation of the decidua and discharged with it.

* Friedländer (physiologisch-anatomische Untersuchungen über den Uterus), Leipzig, 1870, p. 43 and 49), contrary to the adopted view (Henle, Hyrtl, Luschka, that the boundary line between the pavement- and cylinder-epithelium is situated in the lower third or higher up in the cervical canal, describes the cylinder-epithelium, as beginning in children exactly at the external os, in adults occasionally a little higher in the lower third. Lott (Zur Anatomie und Physiologie des Cervix Uteri. Erlangen, 1872, p. 14), finds the boundary much higher up in the cervix.

† Cited by A. Kölliker, Handbuch der Gewebelehre, Leipzig, 1867, p. 562.

mucous membrane consists of a homogeneous basal substance, which distinctly appears first on the addition of acetic acid, Moleschott's fluid,* etc., and of innumerable small cells or rather nuclei closely arranged without order, which are mostly oval and spheroidal and only under a high power show a nucleus and nucleolus in their interior. The membrana propria of the uterine mucous membrane, therefore, is a tissue consisting of a large quantity of cells with but little intercellular or basal matter, and consequently looks like granulation—or glandular tissue, with which it has been compared by Virchow, Henle and Luschka. The homogeneous intercellular substance, on the addition of the above reagent, presents a swollen, gelatinous appearance. Luschka† designates it as homogeneous or at best but imperfectly fibrous, whereas Henle‡ describes it as finely granular, or here and there, after brushing out or the addition of liquor potassæ, finely fibrous. Both anatomists call it a soft substance. Were we to classify it, we should place it among the connective tissues, and liken it mostly to the so-called formless or embryonic connective tissue. By means of this embryonic composition it is probably also adapted, as is no other mucous membrane, to rapid change and easy proliferation and regeneration.

The thickness of the mucous membrane varies, and is greatest at the external os, gradually decreasing from that point towards the fundus. In comparison with the subjacent muscular coat its diameter is extremely small. According to this description the uterus contains in its muscular substance § the supporting tissue which preserves the shape originally given to the organ. This shape of the uterus partly depends on the

* A mixture of acetic acid and strong alcohol of each one volume, and of distilled water two volumes, a modification of Clarke's fluid.—TRANSL.

† L. c., p. 369.

‡ L. c., p. 459.

§ I would here remark that the intermuscular connective tissue in the uterus is very inconsiderable, and increases somewhat from the mucous membrane towards the serous covering.

circumstance that, by means of the attachment of its cervix to the bladder, it is compelled to accommodate itself to the changes in that organ, wherein it is assisted by its peritonæal covering, and partly on a congenital arrangement of its muscular layers. The latter are considerably thinner in the anterior wall than in the posterior, as has been pointed out by most authors (Virchow,* Luschka,† etc.), and certified by accurate measurement.‡ This difference in the thickness of the walls becomes most apparent during the uterine development of pregnancy, when the thickness and weight of the posterior wall attracts particular attention, and even caused Rokitansky § unhesitatingly to ascribe to this circumstance the greater frequency of retroflexion after parturition. To the muscular tissue and the peritoneal covering, therefore, is owing the shape of the uterus, and they, consequently, come into primary consideration in the question of the origin of flexions. The greater frequency of anteflexions in virgins and women who have never borne children or have only miscarried, and of retroflexions in women who have been confined, especially very frequently, thus explains itself. The retroflexion is paradoxical in that the organ becomes flexed in an opposite direction to its natural one, which would hardly be possible without relaxation of the muscular tissue and yielding of its peritoneal envelope.‖

* Die Krankhaften Geschwülste. Berlin, 1867, vol. iii., p. 176.

† L. c., p. 358.

‡ My own measurements entirely agree with those of Luschka. Hüter (p. 22) maintains that the anterior and posterior walls of the uterus are of equal thickness, and incorrectly supposes this to be the common impression.

§ Allgem. Wiener med. Zeitung, 1859, No. 18, and l. c., p. 459. Rokitansky appears to be of the opinion that the greater thickness of the posterior wall is only the result of the development incidental to pregnancy.

‖ Virchow has expressed the idea that the peritoneal envelope of the uterus contributes to the preservation of its shape, in his paper "Ueber die Entstehung der Uterusflexionen," (Allgem. Wiener med. Zeitung, 1859, No. 4). One might suppose that the more the uterine tissue is relaxed the easier an anteflexion would ensue. This, however, is by no means the case: for the

Both occur, however, in the puerperal state. The serous envelope of the pregnant uterus particularly, which, besides by hyperplasia, is also formed through the assistance of the broad ligaments,* does not return to its former condition until long after delivery, and gradually regains its faculty of aiding the approximation of the corpus uteri to the posterior wall of the bladder, which it had lost during pregnancy, if disturbing influences do not prevent it. Such influences are principally disturbance of puerperal involution. Retroflexions are, therefore, most commonly found in women with imperfectly involuted puerperal uteri, which, by means of their general relaxation, are completely subject to the chance influences of their surroundings (weight of the full intestine, etc). Of course, a retroflexion generally needs a longer time for its formation, because normally the puerperal uterus is in an anteflexed condition. That the greater development, and consequent greater weight, of the posterior wall exerts a determining influence on

uterus very rarely becomes relaxed without a coincident relaxation of its serous covering taking place also; and, therefore, in senile as well as menstrual or puerperal relaxation, reclination or actual retroflexion ensues with immeasurably greater facility.

* Here I desire to rectify an error of Luschka, that the peritoneal envelope of the gravid uterus is formed by hyperplasia alone, without the assistance of the broad ligaments. After numerous accurate investigations I am obliged, in conjunction with Kiwisch and Klob, to contradict this assertion, and maintain that both broad ligaments are largely used to cover the gravid uterus. We can best demonstrate this in specimens from women who died immediately after confinement, by examining the ovarian ligaments and the tubes. The latter extend with their middle portion a short distance along the lateral wall of the uterus, not exactly in the median line, but rather a little behind it, nearer the posterior surface of the uterus. The ovarian ligaments are generally reduced to a slight length, having often entirely lost their character as distinct round cords, and lie close to the posterior uterine wall, so that the middle portion of the ovary touches the lateral wall of the womb. Outside of the puerperal state the ovarian ligaments measure 2.5–5 centimetres in length, but in the first week after parturition they are only 8–16 millimetres long. Usually, like the tubes, they are of unequal length on both sides.

the formation of the retroflexion is hardly to be denied, especially as similar inclinations occur in consequence of the increasing size of the posterior wall through tumors. That general relaxation of the uterus, aided as a proximate cause by a mechanical influence (own weight, pressure of the neighboring organs), is the usual cause of retroflexion, and not peritonitic adhesion of the uterus to the posterior wall of the pelvis, is most clearly proved by the clinical experience, that retroflexion of the uterus can generally be easily and completely reduced,* but very frequently returns, if proper care be not taken. A single elevation does not always suffice to preserve the uterus in its normal situation; generally a suitable recumbent position

* I cannot refrain from remarking here, that, following the example of Freund, I never elevate the uterus with the sound but always with both hands, as described by me in a previous article, "Retentionsblutungen," in the first part of the I. volume of these "Beiträge."

(This method of reposition of the retroflexed uterus, as described l. c., p. 36, is as follows: "The finger (or even two, as is possible in puerperio) of one hand introduced into the vagina, and the other hand on the abdomen, seize and fix the cervix between them. Then the internal finger leaves it to the external hand, and pushes the body of the uterus from behind as far up as possible, and, in case the latter, as rarely happens, should lie quite in the median line, at the same time laterally toward the ilio-sacral synchondrosis, because it is often difficult to pass it over the promontory. The external hand holding the cervix is then pressed deep into the pelvic cavity immediately over the symphysis pubis, or one of the superior rami of the pubis, and pushed as far as possible posteriorly towards the cavity of the sacrum. After this first act of elevation, the lifting-up of the corpus and the pushing-back of the cervix uteri, comes the second step, which is also performed bimanually. The finger in the vagina, which was introduced behind the vaginal portion below Douglas's cul-de-sac for the purpose of raising up the body of the uterus, is passed in front of the vaginal portion, and pushes the latter still more towards the cavity of the sacrum, whilst simultaneously the external hand seeks to grasp the elevated uterus a little higher up, slightly below the umbilicus, and to press it forward towards the symphysis pubis. The whole procedure is a somewhat complicated lever-action executed in several steps. As a rule, when there are no adhesions or no tenderness of the abdomen, the whole manipulation succeeds easily and more rapidly than it can be described."—TRANSL.)

or a supporting instrument (Hodge's pessary, Freund's wire-loop *), are required to retain the relaxed and elevated uterus in its normal posture, and give permanency to the complete involution which a proper curative treatment has induced. The relaxation is generally so extreme that the uterus freely follows the law of gravity, and can be flexed at will.

I will here remark, that retroflexion occurs as a congenital anomaly, but in extremely rare cases, and then probably depends on retarded development of the posterior uterine wall. I have no post-mortem experience on the subject. With anteflexion the case is different. The latter is either congenital or acquired. The former variety always depends on an arrest of development of the anterior wall, which is thinner than normally, and the uterus therefore assumes a snail-like curvature. Congenital anteflexion is most frequently found in virgins and in sterile women, or in those disposed to miscarry, and is the most common cause of the so-called habitual miscarriage. Acquired anteflexion occurs in a normally formed uterus, which becomes more strongly flexed by mechanical influences. The latter are either peritonitic adhesions uniting the uterus with the posterior vesical or anterior pelvic wall, or pressure from above (obstinate constipation, large fæcal accumulations, tumors).

For some time there existed a condition of antagonism between the ante- and the retro-flexion, because the former possessed more of a pathologico-anatomical, the latter a clinical interest. Carl Mayer, however, as Virchow states, already called attention to the fact, in the Berlin Obstetrical Society, that in young women, and those who have never borne children, anteflexion is clinically also decidedly more frequent than retroflexion, the frequency of which gradually increases first after the puerperal state or a miscarriage.

Through the kindness of my friend, Dr. Freund, I have large statistical figures at my disposal. In the course of more

* 45th Annual Report of the Silesian Society for Home-Culture, 1868, p. 183.

than nine years there occurred among 4,305 cases in his gynæcological clinic, the following flexions:

	ANTEFLEXION.				RETROFLEXION.			
	CONGENITAL.				ACQUIRED.			
	Multiparæ.		*Nulliparæ.*					
Age.	Married. 1)	Unmarried. 2)	Married.	Unmarried.	*Multiparæ*	*Nulliparæ* 3)	*Multiparæ*	*Nulliparæ* 4)
16—20	1	1	1	12	1	4	1	
21—25	6	2	21	27	26	10	13	3
26—30	19		24	12	42	4	35	2
31—35	9		8	4	35	3	41	5
36—40	3		5	2	21	2	33	1
41—45	3		3		12	1	18	1
46—50			2		2		12	1
51—55			1		1		2	
56—60							1	
61—65								
66—70							1	
Total.	42	3	65	57	140	24	157	13
	45		122		164		170	
	167							

1) Of these 42, only four carried their children twice to the end of pregnancy, among which there was even one immature birth, five went to term only once, four had premature deliveries, and one gave birth to a dead child. All the rest miscarried several times.

2) One went entirely to term once, and one twice.

3) Of these 24, only eleven were unmarried.

4) Of these 13, only five were unmarried.

If we compare these figures with those of other authors we get the following table: *

From this compilation we infer that, according to Rockwitz, Valleix and Hüter, both varieties of flexion occur in almost equal numbers, whilst according to C. Mayer, Hennig, Saxinger and myself, the anteflexions are double the retroflexions, with Scanzoni, Holst and G. Braun even considerably more; with L. Mayer the proportion of the two varieties does not differ so much, but nevertheless it is in favor of anteflexion. Anteflexions, therefore, are not only much more common than retroflexions at the post-mortem table, but also in practice.

* This table is based on the compilation by Hüter (l. c., p. 36). Hüter, however, has taken both flexions and versions together, which explains the high figure of Valleix, which I changed according to F. Churchill (Traité pratique, Paris, 1866, p. 452.)

Author.	Anteflexion.	Retroflexion.	Total.
Rockwitz	63	64	127
Valleix	11	12	23
Hüter	53	65	118
C. Mayer	60	37	97
Hennig	6	3	9
Säxinger	73	39	112
Joseph	331	170	501
Scanzoni	52	11	63
Holst	35	5	40
G. Braun	296	69	365
L. Mayer	120	95	215
Total	1,100	570	1,670

In the preceding pages, above all, is demonstrated the importance of the peritoneal envelope of the uterus, and its pathological conditions in the development of flexions, to which circumstance Virchow has already repeatedly very properly called attention. As a prophylactic measure it will, therefore, be advisable to watch all cases of perimetritis with particular care, and as much as possible guard against their injurious influence on the shape of the uterus. On the other hand, the puerperal condition must be carefully watched. A short summary of the results of the above investigations is as follows:

1. Rokitansky's theory of the normal texture of the uterus and the development of flexions is fallacious, inasmuch as the anatomical substratum upon which it was founded does not exist. The opinion of Virchow, that the mucous membrane of the uterus possesses a submucous layer, is likewise incorrect.

2. The theories propounded by Virchow as to the development of flexions are sustained by the above anatomical facts.

3. Anteflexions, when they are not caused congenitally by defective development of the anterior uterine walls, owe their existence principally to mechanical influences, which are situated either outside of the uterus or are caused by perimetritic cicatricial contraction; retroflexions generally ensue in consequence of relaxation of the uterine tissue resulting from imperfect puerperal involution.

TRANSACTIONS OF THE PHILADELPHIA OBSTETRICAL SOCIETY.

STATED MEETING, APRIL 8, 1873—DR. WM. GOODELL, PRESIDENT, IN THE CHAIR.

DR. PARRY presented a specimen and read the histories of three cases of

RUPTURE OF THE UTERUS.*

DR. GOODELL referred to an interesting feature of this specimen in the length of the cervix uteri. This was about three inches, and the fact shows that what the books say upon that subject is an error.

DR. INGHAM asked of the Society the usual site of rupture of the uterus. In this case the portion ruptured was not that upon which the child would press during labor.

DR. HARRIS said that rupture takes place at all points. In many cases it begins at the cervix and extends up to the fundus.

DR. GOODELL instanced cases in which the rupture had taken place under the surface of the placenta from a concealed hemorrhage.

DR. A. H. SMITH had seen ruptures at the fundus, through the cervix, through the anterior, posterior, and lateral walls of the uterus, and at the vaginal attachment. He referred to a case in which the injury was not detected during life. This patient lost much blood, of a thick, dark, grumous character. The rupture involved the whole extent of the fundus.

DR. MCCALL asked whether the thinning of the walls of the uterus presented was due to disease.

DR. PARRY stated that Dr. Bertolet had examined microscopically the tissues of the organ, but found no disease.

In answer to a question by Dr. Smith, he also stated that *no* ergot had been administered during labor.

DR. WM. GOODELL then related the following history of a

* See page 353, Vol. VI., of the journal.

CURIOUS ACCIDENT FROM THE USE OF THE FORCEPS.

At 1 o'clock A.M. a young primipara was roused out of a sound sleep by the escape of her waters—the os uteri at that time barely admitting the finger. She immediately went into labor, but with pains unusually feeble and infrequent. By 10 o'clock A.M. the os had become dilatable, but the head, which presented transversely with the occiput to the left ilium, had not engaged. The woman being undersized, a contraction in the conjugate diameter was suspected, and the brim was therefore carefully measured and swept by two fingers. The pelvis was found ample, and, as no obstacle to the descent of the head could be discovered, the delay was attributed to the feebleness and infrequency of the pains. Friction, stimulants, enemata were accordingly resorted to, but without any response whatever. As she strongly objected to the forceps, ergot was at last given, but with barely any increase in the severity of the pains. Finally the vectis was, without her knowledge, slipped in over the occiput; but a half-hour's trial with it affected neither the pains nor the position of the head. As she felt inclined to sleep, she was left for three hours. At 3 o'clock P.M., no progress having meantime been made, she consented to an instrumental delivery. Hodge's forceps were accordingly applied —and with great ease—to the sides of the child's head, the female blade being first introduced and rotated up under the symphysis. The lock looked directly towards the left ilium, and the forceps, therefore, became virtually a straight one, in so far as the pelvic curve was concerned. The handles, of course, pressed very firmly upon the coccyx, but the interval between them was rather greater than when the biparietal diameter is grasped. In the absence of any other manifest cause, this divergence of the handles was attributed to a large head. Traction was at first made during the pains only; but as these came at long intervals, and without gaining any progress, it was increased in frequency. After an hour's hard work the head began, during traction, to bear upon the floor of the pelvis; but as the occiput now tended to rotate into the hollow of the sacrum, and, in fact, had reached the left sacro-iliac synchondrosis, Dr. G. decided to end the labor with the vectis.

With that view the sacral blade was first removed; but no prudent force could release the pubic one. It was firmly held by some hard body, which could just be touched by the finger, and which evidently projected through the fenestra. The sacral blade was therefore reapplied, the occiput forcibly rota-

ted to the left acetabulum, and the head with much difficulty delivered in that oblique position. The disturbing cause was now evident enough: the *dorsal* surface of the child's right hand lay against the cheek, and the elbow, being, on this account, raised up from the body and in contact with the head, had been noosed by the fenestra of the anterior blade. The tip of the blade was deeply buried in the palmar aspect of the wrist; the proximal portion of its concave edge seemed lost in the soft tissues of the inner surface of the humerus; while all of the arm and forearm lying between these two points projected through the fenestra. The humerus, just above its middle, was broken in two, and the epiphysis of the radius had been separated from its shaft. The child cried lustily, and, otherwise, seemed none the worse for the rough usage to which it had been subjected. By the use of card-board splints perfect union, without any deformity, was gained in seventeen days. The mother required the catheter for four days, but made a prompt recovery in the usual time, being out of bed on the eighth day. In conclusion, Dr. Goodell remarked that, as his conduct in this case laid him open, perhaps deservedly so, to the charge of carelessness, he would offer in extenuation the unique character of the accident, the refusal of his patient to take ether, and the great sensitiveness of her tissues, whereby he was unable to introduce his whole hand into the vagina. Had he earlier recognized the cause of the delay he would have delivered by version.

Dr. A. H. Smith detailed briefly two cases of obstruction to labor from the intervention of the hand. Both required the use of the forceps. In the introduction of the forceps the blades should be kept closely hugging the sides of the child's head. In doing this by inclining the handles outwards, care should be taken not to carry them too far from the median line.

Dr. Parry referred to the case of clitoridectomy whose history was given by Dr. Goodell at the last meeting. She applied to the Presbyterian Hospital, after having been operated upon by a surgeon of this city, having failed to keep her appointment with Dr. Goodell. In the operation, which was attended with hemorrhage, the surgeon had freshened the internal edges of the labia minora, and, bringing them together, put in three or four stitches, thus making a sort of capsule out of the nymphæ. The uterus was anteflexed, but the external genitals normal. She still masturbates.

Dr. Parry showed a specimen of post-laryngeal abscess, which he had not found described in the books.

The Museum Committee presented the following appeal, which was ordered to be printed:—

APPEAL OF THE PHILADELPHIA OBSTETRICAL SOCIETY FOR AID IN THE FORMATION OF A MUSEUM OF DISTORTED PELVES, OBSTETRICAL AND GYNÆCOLOGICAL INSTRUMENTS.

At a recent meeting of the PHILADELPHIA OBSTETRICAL SOCIETY, it was decided to establish a Museum, for the collection of deformed and distorted Pelves, and for the preservation of Obstetrical Instruments possessing historical value, or illustrating new methods of treatment.

The Society was led to take this action for these reasons:

1st. No subject at present possesses more interest to the Obstetrician than the study of the various deformities of the Pelvis, their mode of production, their influence on the process of parturition, and the principles which should guide the accoucheur when operative interference is deemed necessary.

The Profession is gradually becoming more and more convinced of the influence of contractions, more or less marked, in causing not only tedious and difficult labors, but also in the production of mal-presentations and of many of the accidents of labor.

At present there does not exist any extensive collection of Female Pelves, by which a comprehensive study of this subject can be successfully undertaken. Feeling, therefore, the importance of such observation, the Society purposes to establish a MUSEUM having this object in view, and would therefore earnestly solicit such specimens of contracted Pelves as may be in the possession of members of the Medical Profession, who may be willing to yield the pleasure of individual possession in order to assist in forming a collection which will allow a wider and more comprehensive survey of this subject. If the original specimen cannot be sent, casts or photographs are solicited. In certain cases, possessing unusual interest, the Society is prepared to offer a pecuniary recompense, should this be desired.

2d. Recognizing the fact that various Instruments, designed for Obstetric Manipulations, or for the performance of operations in Uterine Surgery, having been superseded by new and improved models, now possess only an historical interest, the Society has determined to collect such instruments and preserve them, as illustrating the progress of this branch of our art in America. We would also warmly urge upon the inventors of new or modified instruments, and upon Surgical Instrument Makers in general, the desirability of presenting to the Society specimens of Instruments, Pessaries, and special mechanical contrivances which they may be desirous of bringing before the Profession.

All objects, whether embraced in the first or second class, will be conspicuously placed in the Museum of the Society, after having been labelled with an explanatory description, and with the name of the donor.

They will also be carefully preserved, open to the inspection of all interested in the support and advancement of Obstetrics and the kindred branches of Medicine.

All objects for the Museum may be sent to the Secretary of the Society, Dr. J. V. Ingham, No. 1342 Spruce Street, Philadelphia, who will at once acknowledge their receipt, and wil gladly furnish such additional information as may be desired.

By order of the Society.

Wm. Goodell, M.D.,
President.

Wm. F. Jenks, M.D.,
J. V. Ingham, M.D.,
Horace Williams, M.D., } *Committee.*

QUARTERLY REPORT ON OBSTETRICS AND DISEASES OF WOMEN AND CHILDREN.

Quinine as an Oxytoxic. By Robert Gray, L.K. and Q.C.P.J., Medical Officer, Armagh Dispensary. (*The Obstetrical Journal of Great Britain and Ireland*, September, 1873.)

The want of a drug that would increase uterine contractions in cases of powerless or tedious labors, in lieu of ergot, has long been felt, owing to the uncertainty of ergot and the risk to the child's life, unless as pointed out by the late Dr. Beatty delivery was effected within two hours after its administration; besides, as is known in some instances, it has caused hour-glass contraction, thus adding to the danger and difficulty of the case.

Some time ago attention was drawn by one of our continental brethren, I forget whom, to the fact that quinine produced decided oxytoxic effects on pregnant women, and also that in

two hours after its administration to a female in labor it quickened and increased the pains.

Soon after reading this about quinine, a case occurred in which I administered the quinine with this intention with the happiest result. The case was as follows:—

On Sunday, the 5th January last, I was requested by her husband to visit a woman whom he described as having been in labor the whole of the night before, and as I had attended her in her three confinements, and had never been detained more than a couple of hours, I anticipated a short delay. On my arrival, about 11 o'clock A.M., I found my patient comparatively easy. She stated that she had had very severe pains during the night and part of the morning, but that there were very irregular intervals between each, varying from ten minutes to half an hour. Pulse was calm, tongue clean, skin slightly moist and cool, occasional vomiting—in short, every appearance of natural labor except that for the hour prior to my seeing her the pains had almost disappeared. On making a vaginal examination, found the os dilated to about the size of a crown, soft parts cool, rectum empty, had motion before I saw her, membranes unruptured, and a feeble pain caused protrusion into vagina. As she was very large, I ruptured the membranes at 10 P.M., lest delay should be due to excess of liquor amnii. In this, however, I was disappointed, although a large quantity of fluid came away. Shortly after this the pains ceased. I waited until 4 o'clock P.M., and no appearance of the pains returning, I gave her fifteen grains of sulphate of quinine, and repeated the dose at 5 o'clock. About a quarter past five a slight pain came on; in ten minutes another. The pains now came steadily, the intervals between gradually but steadily decreasing in length, though increasing in strength and force, until 8 o'clock P.M., when she was safely delivered of a fine healthy child, without any of the blanched appearance so commonly seen after the taking of ergot during labor. Mother and child progressed favorably without any untoward event occurring.

The other case was a multipara, who had four children. She was of a very nervous and excitable temperament, subject to neuralgia of the head and face. About a month prior to her confinement she was laid up with a very severe attack of neuralgia; it, however, yielded to bromide of potassium and aconite. She remained well until ten days before her delivery, when false pains set in with such severity that 50 minims of tincture of opium produced little or no effect—in short, no medicine seemed to have any control over them whatever. I should *state*

that after the opiate on the next morning I had her bowels cleared out with an aperient; I also gave her chloral hydrate, belladonna, poppy stupes, opiates (morphia and opium), and hydrocyanic acid, but without effect. By the eighth day of this suffering my patient was greatly reduced, as, in addition to the pains, her stomach would not retain any kind of food, however simple. I now concluded that unless delivery were soon effected my patient would probably sink from exhaustion. On the evening of the eighth day I gave her a mixture containing quinine in solution; each dose contained three grains, and immediately after taking the medicine I directed her to swallow a lump of ice about the size of a bean, both to be taken thus every third hour. On my arrival next morning she stated that she had passed an easier night than any of the preceding, and that the severity of the pains had been greatly mitigated. She had only rejected the medicine once or twice, the other times it remained, and she now thought she was in labor, as a slight discharge of blood and mucus had come away about an hour before my seeing her. The pains now present were regular in time, and she felt much more comfortable than she had done for days. On making a vaginal examination, found the os uteri would permit the passage of the finger. Visited her during the day. Found labor progressing fairly. Membranes unfortunately ruptured early, so that labor was retarded, but at ten o'clock she was safely delivered of a healthy child. Mother and child did well. In this case the mother continued the quinine until quinism was produced, about four hours before delivery. I directed her then to stop taking it.

In both these cases the uterus presented a very different aspect from that which it does after ergot. Quinine does not produce the same persistent state of contraction as ergot. In each the contraction passed off, just as it does in natural labor, and the uterus was quite flaccid and soft. Some objections might be raised against quinine, as for instance the time that elapses from its administration until it acts, which would not suit in cases requiring quick delivery; but for such we have the forceps, etc. Again, when administered in large doses, it produces, besides quinism, irritability of the stomach; but I have found that ice prevents this latter, and quinism passes off after a time without leaving any unplesantness behind.

Hydrate of Chloral in Obstetrics. (*London Lancet.*)

Dr. Dujardin-Baumetz has recorded, in the last number of the *Gazette Médicale de Paris*, several cases in which the use

of hydrate of chloral was remarkably successful. In the first case (primipara, protracted cephalalgia, œdema of legs and eyelids, albumen in urine) a fit of eclampsia supervened two days before the labor, and lasted ten minutes. An enema with one drachm of chloral was administered, and the patient fell asleep. On the day of the accouchement, as a precaution and to avoid a recurrence of the fit, two enemata, with one drachm of chloral in each, were administered at two hours' interval. No fit occurred, and, furthermore, the contractions were quite painless, though they were even more intense and frequent than normal. In the second case, where albumen was found in the urine, there existed the usual conditions for eclampsia. Hydrate of chloral was administered as a preventive, and no fit occurred. Lastly, in several other cases, where the patients were excitable, nervous and weak, Dr. Dujardin-Baumetz gave chloral with the greatest benefit, in doses of from one-half to one drachm. It always had the effect of soothing the pain, and, moreover, of accelerating the process of labor. Dr. Baumetz much prefers chloral to chloroform in eclampsia, but recommends that it should be administered in sufficiently strong doses (two and even three drachms).

Uræmic Eclampsia in a Pregnant Woman.—Coma.—Death.—Cesarean Section.—Extraction of a Living Child. (*Progrès Médical* and *Obstet. Journ. of Great Britain and Ireland*, Sept., 1873.)

A woman, aged thirty-five, had seven normal pregnancies, and was at the end of the eighth month of pregnancy when she had swelling of the legs and face. After losing consciousness she had fits. She was removed to the Hôpital de la Pitié, and on her arrival was found to be in a state of coma, with stertorous respiration and complete loss of consciousness. The fœtal heart was heard. The urine was highly albuminous. As a fatal issue was anticipated, preparations were made for performing Cesarean section, which was effected two minutes after death, and the child was extracted three minutes after the mother's death, and throve well.

M. Yvon analysed the urine, which contained much albumen and but little urea, whilst the blood contained a certain specified amount of the latter. The kidneys presented all the characters of parenchymatous nephritis. The author, M. Macé, remarks that this was a case of uræmia and lowering of temperature, and according to the works of M. Bourneville, he calls it by the name of eclamptic uræmia, because it is known that in

puerperal eclampsia there is elevation of temperature. He concludes that the Cesarean operation should be quickly performed, and for that purpose everything should be in readiness before the mother's death.

ON CASES OF PUERPERAL SEPTICÆMIA TREATED BY ELIMINATION. By T. MORTON, M.D., Surgeon to the Kilburn Dispensary, London. (*Obstet. Journal of Great Britain and Ireland*, Sept., 1873.)

THERE are few kinds of cases met with in practice which involve more trouble and anxiety to the medical attendant than those which we speak of generally as puerperal fever. Certainly no deaths are more distressing than those in which such cases too often terminate.

During the last two or three years I have been led to adopt in such cases a certain definite line of practice, under which I have had such excellent results, and which has appeared to me so sound and satisfactory, that I have been induced to bring it to the test of publication.

As the term puerperal fever is somewhat loosely used, and may perhaps include some cases which may be independent of septic poisoning, I have preferred to adopt the word septicæmia, both because it expresses my belief that a vast majority of cases of puerperal fever have a septic origin, and because I expressly intend to exclude those exceedingly virulent cases of puerperal disease in which gangrene and suppuration continually occur, and which are therefore capable of being distinguished as pyæmia. These deform the records of lying-in hospitals, but do not often occur in private practice. They are I suppose almost necessarily fatal in a vast majority of instances under any treatment, and I have, happily, no experience of them. The cases, then, upon which my remarks are founded are not of this extreme type, but fair specimens, as I suppose, of those ordinarily met with in practice; sufficiently formidable indeed, and very often fatal, but so far amenable to treatment that it becomes of the utmost importance to consider what is the right treatment.

They present, upon a general survey, the following symptoms:—One or more rigors at the outset, generally severe, seldom recurring after the second day unless any suppuration occurs. Rapid, often exceedingly rapid, unequal, and irregular pulse, seldom much below 120, and not unfrequently reaching 140, in the minute. Hurried respiration, often relatively quicker even than the pulse. A temperature ranging from 101° to 104°,

and occasionally rising to 105° and even 106°, subject to fluctuations more marked than in most other fevers. Diminution, and after a day or two complete suppression, of milk and lochia, the latter of which acquires a peculiar offensive odor suggestive (like patchouli) of dead tissue, and so characteristic that it ought in my opinion to be distinguished by an adjective of its own, which might be *kakolochial*. Vomiting frequently occurs at the outset, and sometimes later; and diarrhœa, easily induced if not spontaneous, the motions distinctly partaking of the kakolochial odor. Abdominal pain and tenderness, especially in the iliac regions, but not constant or persistent. Often intense headache. Sometimes delirium, but less frequently than might have been expected. In one of my cases, a degree of dulness and stupor, accompanied by noises in the head and deafness, powerfully suggestive of typhus. Tongue generally moist and tolerably clean, but, if fever continues long enough, becoming dry and brown in the middle, and eventually dry, red, and glazed all over. Thirst generally great, appetite bad, but food seldom entirely refused, and often taken surprisingly well. Tympanitis in severe cases, independently of acute general peritonitis, which sometimes occurs, as did also pericarditis in one of my cases, and pneumonia in another.

Finally *abscesses*, which occurred to me in two cases in 1871, and which I mention here because their occurrence seems to me to furnish the last link in the chain of insensible gradations connecting such comparatively trifling puerperal disturbances as those to which I propose first to refer (see Diagrams I. and II.) with the most strictly pyæmic cases, and thus to afford a very strong confirmation of the presumption, which I think the symptoms just enumerated fairly warrant, that the slighter as well as the more severe cases are alike of septic origin, by which I mean that they depend upon the absorption into the general circulation of decomposing fluids and disintegrating deposits from the veins in the uterus.

Passing now from the disease to its treatment; the single word *purging*—shorter, plainer, and more home-bred than "elimination"—would serve roughly to sum up the principal part of my treatment, and indicate by its primary and secondary meanings both my theory and my practice. I do, however, also rely upon, or at all events practise, the steady exhibition of sulphite of soda in ʒi. or ʒ ss. doses every three or four hours throughout the case, and I endeavor to keep up a carbolized atmosphere by means of McDougall's powder placed in small bags in and about the bed, as recommended by Mr. John Wood. I have also given lately McDougall's fluid carbolate in drachm

doses instead of the sulphite. I scarcely ventured to say I *relied upon* the sulphite, because in truth I am not entirely satisfied whether it does much good or not. I adopted it mainly on theoretical grounds, and though nearly all the cases in which I have given it have done well, I am inclined, from closely watching their course, to ascribe the good result principally to the purging.

The purgative agent upon which I have mainly relied is calomel, which I gave at first in 5-grain doses combined with a little Dover's powder, as originally suggested to me, but latterly in 3 or 4-grain doses with extr. col. co. Its popularly received qualities commend it of course as an eliminant, but I gave it at first because it was originally suggested to me, and I have continued to use it because I felt sure that I saw it do good.

I do not of course recommend that it should be given indiscriminately throughout a case, but I make it my rule *never to repress diarrhœa; when there is improvement without it, to leave well alone; when there is no improvement without it, to lose no time in setting it up.*

I ought to add that when there is much pain and tenderness of the belly I employ linseed-meal poultices sprinkled with laudanum, and that I occasionally find it advisable to give a dose of chloral; very rarely indeed a dose of opium, and never except in combination with calomel. Indeed, I have a great dread and distrust of opium in these cases, believing it to be capable of checking salutary elimination and masking dangerous symptoms. I give as generous a diet as the patient will bear, with a moderate, and occasionally a liberal, allowance of stimulants.

I endeavor to secure, of course, and attach great importance to good nursing, and I aim at economizing the patient's strength by withdrawing the child from the breast as soon as really serious symptoms show themselves.

Having thus given a general view of the cases I am speaking of and the treatment I advocate, I will now proceed to explain and support my views by reference to a few illustrative cases; taking first the slighter and more common ones, and going on to the more severe, as being both the most lucid arrangement and corresponding best to the growth of my own views on the matter.

And first let me acknowledge my obligations to my friend and former partner, Mr. J. C. Whaley, of Kilburn, who first recommended to me the practice, which he had long followed, of giving five grains of calomel and ten of Dover's powder whenever high febrile symptoms set in in a lying-in woman. I had begun practice with a horror of active treatment, espe-

cially of active purgatives, and more especially of calomel, and should have been the last person to whom such an idea would have occurred; but I had seen several fatal cases of puerperal fever under a different treatment, and I did not despise the traditions of an older school when confirmed by the experience of a man I could trust. I accordingly tried it, and found, as I had been led to expect, that very ugly febrile symptoms subsided rapidly under the influence, apparently, of the dose.

The first case to which I shall refer in illustration of this is that of a young woman, named English, lying-in with her fourth child, in whom rigors and severe headache occurred on the third day, with diminished discharge, retarded establishment of the milk, some tenderness of the belly, and a pulse of 124, with resp. 32, and temp. 103⅘°. A dose of three grains of calomel with seven of extr. col. co. was given at once. Three loose offensive motions were passed at very short intervals in the night: the woman expressed herself as feeling better immediately, was found next morning with pulse 88, resp. 21, temp. *normal*, and went on quite well afterwards.

This woman was wretchedly poor and out of condition at the time of her labor, and lost a good deal of blood during the first twenty-four hours owing to imperfect contraction of the uterus; conditions which are both, and the latter especially, favorable to the occurrence of puerperal fever.

The next case is that of a young woman named Mills, lying-in with her third child. She was also rather out of condition through prolonged attendance upon a sick child, and had been suffering a good deal of pain in the right iliac region. She had sharp after-pains the first day, after a rather severe labor, but appeared to be going on well up to the morning of the fourth day, when she had a pulse of 84 and a cool skin. About five P.M. she was seized with intense pain in the back and right ilium, violent rigors, fulness and pain of head, and numbness of extremities, pulse 116, resp. 30, temp. 102½°. Milk and discharge almost suspended. She was ordered a linseed-meal poultice with tr. opii, and took five grains of calomel and eight of Dover's powder within an hour. There was not much change by 11 P.M. except a slight fall in temperature. In the night, however, she had three loose foul motions, and next morning the pain was all but gone, although some tenderness remained. She had a good expression, and felt much better. The temperature, however, was still high, 103⅕°, and rose to 104° by night, there having been some headache all day. The bowels continued to act frequently through the day, and also several times in the night, the motions gradually losing their offensive character, and by

the following morning (the sixth) she was very much better, with a free discharge and an increased though still scanty secretion of milk. The pulse was still 116, but the respiration had fallen to 20, and the temperature to 101⅘°, reaching the normal rate on the following day (the seventh), when the pulse was 96, the respiration 20, and all going on well.

It was scarcely possible, in cases like these, to overlook the fact that active purgation accompanied the improvement, and was borne surprisingly well, and the inference so natural from this was confirmed by the recollection of two cases in which severe diarrhœa had accompanied alarming febrile symptoms setting in a few days after labor, and, after resisting all my efforts to repress it, had subsided in two or three days along with the fever without doing any harm. I have notes of one of these, in which severe rigors occurred on the fourth night, and pain and tenderness of the belly, an anxious countenance, and a pulse of 120 were noted on the fifth day. There was also severe vomiting, and diarrhœa set in after a dose of one grain of calomel and five of Dover's powder, not intended to be purgative. The milk and lochia were almost entirely suspended by the morning of the sixth, and disappeared entirely during the seventh and eighth days, showing some signs of reappearance on the ninth, and being restored by the tenth; but the purging did not entirely cease until the twelfth, in spite of sedulous efforts to repress it.

A very similar illustration of the usefulness of diarrhœa is afforded, as it seems to me, by the following case, where purging continued for five days, after giving, as I now began to do, a decidedly aperient dose under similar circumstances, all attempts to check it being also of course given up:—

Mrs. McKellar, a young primipara, had a long and severe labor terminated by the forceps. The uterus contracted badly, allowing rather profuse discharge for the first two days, and the formation of large clots, which passed on the second day. The pulse never fell below 100, and was 120 on the second day, the temperature being 100⅘°. On the third day the pulse had risen to 140, resp. 32, and the temperature to 103⅘°, and there was much pain, especially in the right ilium, where tenderness was also present. She took four grains of calomel and five of Dover's powder, which had to be repeated twice on account of vomiting, and sharp purging set in in the course of the night.

Next day (the fourth) her pulse was 140, and the respiration about 30 both morning and evening, the temperature, however, having fallen to 101⅘° in the morning, and only reaching 102⅕ in the evening. The abdominal pain and tenderness were

unabated, and there was some tendency to tympanitis. There was a slight attempt at secretion of milk; very little discharge. Laudanum was applied on poultices to the belly.

The purging continued at frequent intervals, and went on unabated all through the night and the next day (the fifth), during which there was some improvement in her general condition, the pain abating somewhat, though the tenderness persisted, the tongue cleaning, and the appetite beginning to return. There was also rather more discharge and a trace of milk. The pulse and respiration were 124, 32 in the morning, and 132, 30 in the evening, and the temperature was just $\frac{2}{5}^{\circ}$ higher than on the preceding day, both morning and evening.

The diarrhœa continued with very little diminution during the next two days (the sixth and seventh), seven motions being noted between my two visits on the former, and five on the latter day. The tongue continued to clean, the appetite to improve, and the abdominal pain and tenderness steadily to decrease. The discharge maintained itself to a slight extent, but the milk quite disappeared on the seventh day, traces being however again noted on the eighth and ninth. The pulse and respiration averaged 122, 29, if we except one observation of a pulse of 140, probably occasioned by some exertion on the evening of the sixth day. The temperature fell from $102\frac{1}{5}^{\circ}$ to $100\frac{9}{10}^{\circ}$ on the morning of the seventh day, and, notwithstanding a temporary rise of one degree on the evening of that day, reached 99° on the eighth, and did not again exceed it, though an absolutely normal temperature was not noted till the eleventh day.

There was still some diarrhœa on the eighth day, but the motions, though still loose, did not exceed two in number on the ninth or tenth, and the bowels ceased to act at all from the morning of the eleventh till the thirteenth, when a gentle aperient was given.

The poultices were continued until the eleventh day, when the abdominal tenderness was all but gone, and the pulse at last fell below 100.

This case is remarkable for the way in which the pulse and temperature began to run up from the very first, and still more so, unless there is an omission in my notes (which I rather suspect) for the absence of rigors, which occurred in every other case without exception.

The range of temperature is not nearly so high in this case as in those which follow, but the occurrence of a pulse of 140 on three several days shows it to have been of considerable gravity.

Before passing on, I pause for a moment to anticipate an objection which may possibly be urged to the argument founded upon such cases as the last; the objection—namely, that the central fact in them may really be the diarrhoea, which runs away, so to speak, with the milk and lochia, and that the febrile symptoms, so far from being relieved by the diarrhœa, are in reality secondary to and dependent upon it. This is of course a plausible interpretation of the facts, for it is evident that the diarrhœa is conterminous in point of time with the failure of milk and lochia. But this theory takes no account of those cases where precisely similar symptoms exist without any looseness of the bowels, and appear indeed to be manifestly relieved when it is set up: it ignores the rigors, and it offers no explanation of the cause of the diarrhœa—unless, indeed, it accepts ours, in which case it is virtually surrendered; for septic poisoning, if admitted to be present, will, we know, account for a pulse of 140 and a temperature of 104°, whereas the severest diarrhœa hardly will.

The first two or three cases to which I referred were perhaps hardly grave enough to be dignified by the name of septicæmia, though the symptoms which they presented up to the time of diarrhœa being established, did not differ in any way from those of the subsequent cases, or of many others which have eventually proved fatal.

The last three, however, were, I venture to think, of a sufficiently grave character, and required a sufficiently bold and thorough application of the principles which I am advocating, to furnish a really serious test of their value.

I have treated three others of equal if not greater gravity on the same principles, and with the same result; but I unfortunately have not such notes of them as to be able to present them in anything like a complete form.

They all three occurred after severe first labors terminated by the forceps. In one of them, which was, I think, the most severe of the six, there was extremely acute peritonitis with most distressing tympanitic distention of the belly, and, when that subsided, pericarditis came on and made me almost despair. The other two are those to which I referred as instancing the formation of abscesses, which did not, however, occur until the other symptoms were beginning to abate, and did not import much fresh danger into the cases. In all, purging was most continuous and severe, as it has been in every case which I have seen recover.

These results are, it seems to me, sufficiently striking in themselves; but if I wished to throw them up into still bolder

relief, a sufficiently dark background could easily be got out of my remaining experience of puerperal fever, comprising as it does four cases, none of which were characterized by diarrhœa or treated as I should now treat them, and all of which were fatal.

I do not wish, however, to strain these cases to any such purpose, being conscious that this would hardly be fair, inasmuch as one of them was a case of that excessively malignant type where unaccountable sinking sets in from the very first, the vital powers being probably overwhelmed by the force of the blood poison; while two others presented such an acute form of peritonitis and set in so quickly after such extremely exhausting labors, that it is very doubtful whether they could have been saved even under such treatment as I should now employ. That they did not have so good a chance, treated as they were with opium, I am certainly persuaded, and the result in any case could not have been worse.

The last of the four, however, seems to me so instructive, and made such a deep impression upon me at the time, that I must briefly recount it. The patient was a healthy young woman, lying-in with her third child, and her labor was in all respects favorable. On the third day febrile symptoms and peritonitis set in, and entertaining, as I did by that time (July, 1871) the same views as I do now, though I did not hold them so firmly or clearly, I began the treatment as I should do now. Unfortunately, however, something about the case—the very moderation, I think, of the febrile symptoms—somehow gave me the impression that here was a case in which the fever really was only secondary to the local inflammation, and this error being clinched by the opinion of a gentleman who was called into consultation with me, the eliminative treatment was given up on the evening of the fourth day, before diarrhœa had been established, the bowels being very obstinate, and opium administered instead. This gave some apparent relief, and I was beginning to congratulate myself on the correct distinction we had made, when, on the seventh day, a large brawny infiltration of the tissues about the left hip, which must, if she had lived long enough, have softened into a tremendous abscess, was found to have formed without much attendant pain, and my poor patient commenced to sink and died on the following day. Could there, I ask, be a better example of the danger of regarding febrile symptoms occurring after labor as due to anything but septic poisoning, or of the jealousy with which we ought to regard the administration of opium? The case gives me occasion also to express my conviction that the peritonitis

which so frequently occurs in these cases is, at least when at all acute or general, a true serous inflammation from the effects of blood poisoning, and not a mere extension of a process commencing in the neighborhood of the uterus. I have already mentioned a case where pericarditis set in on the subsidence of peritonitis, and in the only case of puerperal fever which I ever examined after death, I was very much struck by finding, contrary to my expectation, the parts about the transverse colon much more intensely inflamed than those in the neighborhood of the uterus.

To conclude, then, with a brief review of the position which I think the facts I have adduced warrant me in maintaining. It is, in the first place, incontestable that severe and continuous purging, whether spontaneous or induced, is consistent with recovery from very severe forms of puerperal fever. And further, that the diarrhœa is not only consistent with, but highly conducive to the recoveries, and that it is so by causing elimination, are two highly probable inferences which I think I have said enough to justify our drawing, at least provisionally. And I am confident that those who will so draw them and act upon them will find them confirmed in the best of all ways—namely, by experience.

Discussion of the subject would, I doubt not, bring some measure of confirmation from the experience of other men; and I have had my attention called since this paper was projected to the fact that two elaborate memoirs, the one chiefly relating to the pathology, and the other to the treatment of this class of cases, have recently been published in France by M. d'Espin and M. Hervieux, with whose conclusions it is a great satisfaction to me to find my own almost completely in accord. M. Hervieux, indeed, carries the principle of elimination much further than I have done, suggesting as means of treatment not only purgatives, but emetics and even venesection and blisters.

The general question of elimination as a curative process, attractive as it would have been had space permitted, does not demand from me more than a passing reference, inasmuch as what I have advanced does not lean upon it so much as support it. Its relation to my argument is such that I need not assume its truth, though to assume its falsity *à priori*, as Hume did that of miracles, would of course be fatal to my case.

And I think there are few propositions in therapeutics where this would be less allowable, because there is scarcely one which has been more universally held, in some form or to some extent, from the earliest times of medicine until now.

And although in medicine articles of faith are not necessarily true because they answer to the test of "quod semper, quod ubique, quod ab omnibus," yet a catholicity such as this does in reality depend upon a wide, though informal and perhaps unconscious induction from facts, and can only be encountered by a corresponding process of induction, which may be less wide in proportion as it is more precise, but must yet in such a case as this be very wide indeed.

Its width may not daunt the daring heretics who inaugurate "sacred wars" against old beliefs, but it may yet weary them; and if there be any source from which they are likely to draw an array of facts sufficient for their campaign, I do not believe any contingent will be furnished from the records of septicæmia.

On Immediate Suture in Ruptured Perinæum. (*Obstet. Journal of Great Britain and Ireland*, September, 1873.)

Dr. Boeckel writes upon this subject in the *Strasburg Medical Gazette*, and concludes that it is best at once to insert sutures even in the severest cases. Dr. Joulin, of Paris (*Gaz. de Joulin*), would be of the same opinion if the alternative lay between immediate suture and subsequent paring of the edges of the ruptured parts, which latter he regards as a dangerous operation, especially when the bowel is injured. He remarks that the parts immediately after a laborious delivery are bruised and indisposed to heal by first intention, and that the organism has a singular disposition to purulence after labor, which diminishes with lapse of time. He says, "Moreover, for a week a woman who has undergone a laborious delivery, remains accessible to the general accidents of the puerperal state, and often but little is required to light them up. While accepting the principle of primitive interference, I believe it is advantageous not to resort to it immediately. I prefer to wait till the dangerous phase has passed, till the tissues, disgorged as it were, have resumed their vitality. By attentively watching the state of the wound, it may be possible to choose the opportune moment, without waiting, it must be understood, till cicatrization has occurred."

[Note.—M. Joulin's precepts are good; nevertheless, where there is reason to believe that when the perinæum has sustained but little bruising, we are of opinion that immediate suture will yield much the best results. The insertion of sutures shortly after the accident is considerably less painful than at any other time, and may be done without the use of anæsthetics should

such agents be contraindicated. The most convenient needle for perineal operations is that made with the curve at right angles to the shaft; and twisted silver wire is preferable to the single wire.]

PHYSIOLOGICAL RESULTS OF DOUBLE OVARIOTOMY. (*Montpellier Médical* and *Obstet. Journal of Great Britain and Ireland*, September, 1873.)

KOEBERLE, of Strasbourg, writes to M. Puech that his patients on whom he has performed the operation of double ovariotomy are not less loving to their friends, parents, or husbands. The genital organs remain excitable. Their character has become sweeter and less irascible. The breasts have not diminished. There is no tendency to obesity where it has not already existed; no alteration in the increase of hair, nor modification of the voice. Perfect health has been the rule in spite of cessation of the menses. The patients do not lose their distinctive characters.

CYSTS OF THE PAROVARIUM. (*Gaz. Méd. de Strasbourg* and *Obstet. Journal of Great Britain and Ireland*, Sept., 1873.)

M. KOEBERLE lately exhibited at the Strasbourg Medical Society two cases of parovarian tumors which he had successfully removed, and of which one was diagnosed by puncture before the operation. These cysts are formed by an extraordinary development of the organs of Rosenmüller, and are situate at the external end of the Fallopian tube, in the posterior part of the broad ligament at the top of the space which separates the ovary from the pavilion. They may acquire the volume of an ovarian tumor, but differ not only in origin but in their anatomical structure and contents.

They develop in the thickness of the broad ligament amongst cellular tissue, where numerous vessels abound, and are easily enucleable from their peritoneal covering. They may have some connections with the Fallopian fringes or the ovary, but usually these are isolable without difficulty. The walls are formed by a fine fibrous layer covered by a single layer of cylinder epithelium, with sometimes very short cylinders, and on which occasionally vibratile *cilia* are found. The contained fluid is extremely limpid, does not contain albumen, and has a more or less saltish taste. These parovarian tumors appear to influence the general health much less than those of the ovary. Their course, also different, presents two periods, the first in which the disease very slowly develops, and the second, which, on the contrary, is very rapid.

On Syphilis of the Placenta. By Dr. Ernst Fränkel, Breslau. (*Ibid.*, vol. v., p. 1–54. 1873)

The author calls attention to the difficulty formerly experienced in obtaining a sufficient quantity of cases of undoubted placental syphilis, the parents frequently appearing quite healthy, and the fœtus being too far gone in maceration to be able to draw any conclusions as to the syphilitic degeneration of its internal organs, and consequently of its placenta; in consequence of which difficulty, perhaps, and of the exceedingly variable results of the examination of undoubtedly syphilitic placentæ, the opinion had hitherto been prevalent, that no general characteristic and unfailing signs of placental syphilis could be named. Thus the matter stood, Hennig stating in a special treatise, as late as 1872, that the similarity of the products of syphilis, and those of simple inflammatory processes prevented the existence of placental syphilis from being more than a supposition, but not definitely proven, when Wegner, first assistant to Virchow, published his investigations in Virchow's *Archiv*, vol. l., and furnished a conclusive proof of the existence of hereditary syphilis, by the discovery of a peculiar and characteristic abnormal condition of the bony structure of the fœtus, viz., an inflammation at the point of junction of the diaphysis and the cartilage of the epiphysis, or in the ribs at the boundary between the bony and cartilaginous portions—in short, an osteo-chondritis syphilitica. Thus hereditary syphilis may be diagnosticated in every case, no matter how much the soft parts of the fœtus be macerated, or how healthy the parents may appear.

Fränkel examined upwards of 100 placentæ during the year 1871, including all those obtained from macerated embryos, miscarriages, syphilitic mothers, or those presenting any changes, besides a number of normal placentæ, for the sake of comparison. Fresh specimens were examined in one-half per cent. solution of salt. Cuts were first inspected without coloring, then colored in carmine and glycerine, aqueous ammoniacal solution of carmine, picric acid, or solution of hæmatoxyline and of alum, cleared with Beale's fluid or creasote, and put under the lens. Other specimens were hardened in Müller's fluid, chromic acid, or alcohol, cleared with glycerine, and colored as above.

F. found in all placentæ (with one exception), whose syphilitic nature had been determined by the examination of the parents or the evidence of osteo-chondritis in the child, a peculiar pathological change, which he calls *Deforming proliferation of the granulation-cells of the placental villosities.* He de-

scribes it as the filling of the body of the villosity with numerous medium-sized cells proceeding from the vessels, complicated by the proliferation of the epithelial covering of the villi, which therefrom assume a thick, bloated appearance in the higher degrees of this proliferation of the cellular contents of the villi; obliteration of the vessels and the villosities themselves ensues. This condition is not to be mistaken for other pathological changes frequently occurring in the placenta, and somewhat resembling it, viz., 1, the normal fatty degeneration and obliteration of the peripheral villosities in the mature fœtal placenta, which, like the analogous changes in the maternal placenta, are only the signs of involution and retrograde metamorphosis of this organ at term; 2, the infiltration of the villi with molecular granular masses, caused by impeded circulation and functional disturbance in the vessels of the villi, found mostly in abortions—the villi are slender, atrophic, and undergoing the process of fibrous degeneration; 3, coagula between the villi, which may become changed into molecular fat; 4, all ancient confusing denominations, such as scirrhus, encephaloid, etc., which mean anything or nothing. Syphilitic placentæ are, besides, generally very large, heavy, and of firm texture.

F. closes his valuable article with the following conclusions:—

1. The placenta may become syphilitic, and there are characteristic signs therefor.

2. Placental syphilis is only found in connection with hereditary or congenital syphilis of the fœtus.

3. The site of disease varies accordingly as the mother remains well and the syphilitic virus was imparted to the ovum directly through the semen, or as the mother is also infected. In the former case, if the placenta takes any part in the disease of the fœtus, which is not absolutely necessary, the villosities of its fœtal portion become degenerated by means of deforming, cellulo-granular proliferation, with consecutive obliteration and atrophy of the vessels, frequently complicated with rapid proliferation and thickening of the epithelial covering of the villi.

4. In the second case, when the mother is syphilitic, we have the following three possibilities: (*a*) The mother becomes infected by the act of generation together with the fœtus: in the placenta diffused villous syphilis may then develop itself, or primary disease of the maternal portion, endometritis placentaris, may ensue. (*b*) The mother was already syphilitic before conception, or became infected soon afterwards: then the placenta may remain normal or become diseased; in the latter case under the form of endometritis placentaris gummosa, or (according to Virchow) also as endometritis decidualis

alone. (*c*) The mother does not become infected until the latter portion of pregnancy (7th–10th month). Then, provided the father was healthy at the time of generation, immunity of both the fœtus and the placenta exist.

5. The infection of the fœtus while passing the maternal genital canal has been but seldom proven, and then not with certainty.

THE PATHOGENESIS OF THE RACHITIC PELVIS. By DR. F. A. KEHRER, Giessen. (*Archiv für Gynaekol.*, vol. v., pt. 1, p. 55–99.)

IN order to arrive at positive and valuable results on the mode of development of rachitic pelves, the researches should be made in two directions, a genetic and an experimental. The first class must seek to obtain a continuous series of the various forms of deformity at different stages of development; these must be compared with normal pelves of children of the same age, and each specimen must be examined to ascertain the form and direction of the spinal column and lower extremities, the strength, diameter, and resulting force of the muscles, the direction, elasticity, and firmness of the ligaments, the growth and decrease of the bones by comparison with more advanced specimens, etc.; and all these results must be compared with those of normal pelves. The second class calls for a series of experiments on animals—the higher organized and the nearer the human species in their manner of walking and holding the body, the better.

To the number of published cases of congenital rachitis Kehrer adds six new instances, the study, measurement, and comparison of which with other normal pelves of the same age, has enabled him to arrive at the following conclusions: A number of peculiarities of form, which are characteristic of the rachitic pelvis, occur already in the fœtus, and also in children who cannot yet stand or walk. Such are, enlargement of the sacrum in the longitudinal and transverse diameters, inward flexion of its lower extremity, advance and descent of the sacrum, sagittal (antero-posterior) flexion of the ossa ilii, gaping and flattening of the cristæ ilii, reniform or rounded triangular inlet, dilatation of the pubic arch, etc. Inasmuch as the question of pressure exerted by the trunk and thighs does not enter into account with the fœtus, but only muscular and ligamentous traction and muscular pressure on the joints, the fact is demonstrated that muscular action has a much greater influence on the formation of a rachitic pelvis than was formerly sup-

posed. Farther, a portion of the rachitic deviations of form does not depend on anomalies of growth, but on infractions, and the partial arrest of growth particularly alluded to by Engel (*Wiener Med. Wochenschrift*, 1872, p. 40) only imperfectly explains *one* rachitic peculiarity of shape, namely, the relative shortness of the true conjugate diameter.

THE ÆTIOLOGY OF KNEE-PRESENTATIONS. By DR. P. MÜLLER, Würzburg. (*Archiv für Gynaekol.*, vol. v., pt. 1, p. 126–132.)

KNEE-PRESENTATIONS are very rare, different authors finding one case among from 1,000 to 5,000 deliveries. That they may develop themselves out of primary-footling or breech-presentations was known, but the cause and mechanism of the deviation have not been satisfactorily explained. M. has witnessed three cases in which the lower portion of the fœtal leg was stretched directly across the brim of the pelvis; twice in the diagonal and once in the transverse diameter, the heel resting on the posterior and the knee on the anterior margin of the pelvis, both in the same plane. In the first case the knee was subsequently pressed down by the uterine contractions, and a veritable knee-presentation developed; in the two other cases the proximity of the head to the brim of the pelvis made it extremely probable that this had been the originally-presenting part, and that the legs had been subsequently pressed downwards beside the head. The legs were stretched by M., as their transverse position presented an obvious obstacle to the completion of the labor (the length of the leg of a well-developed, newly-born child from knee to heel is 13–14 cm., and the transverse diameter of the pelvis 13½, the conjugate only 11 cm.; impaction of this part of the leg is consequently quite possible). All three cases were terminated by manual extraction. The deductions are, that a knee-presentation may develop itself out of a transverse position of the leg in the pelvic brim; that this position is liable to occur under certain conditions, where a head-presentation is changed to a breech- or footling-presentation; and that this transverse position may not only temporarily produce a knee-presentation, but may also be of some duration, and cause a mechanical obstacle to delivery.

A COMPOUND CYST OF THE VAGINA. By DR. R. KALTENBACH, Freiburg, Baden. (*Archiv für Gynaekol.*, vol. v., part 1, p. 138–144.)

THESE cysts are quite rare (Winckel was able to collect only 50 cases), and their ætiology is still obscure. Kaltenbach de-

scribes a cyst occurring in a woman on whom amputation of the cervix and posterior colporaphy were performed for prolapsus uteri. In the posterior wall of the vagina was found a fluctuating tumor, which, on puncture, was found to contain a thickish, brown fluid, and which was removed almost entire in the flap dissected from the posterior wall of the vagina during colporaphy. On close examination there were found to be two cysts of the size of a cherry, both of which were lined with small tesselated epithelium, the upper layers being flattened like epidermis; in one of the cysts only here and there cylinder-epithelium was to be seen. The internal surface of one of the cysts was covered with wart-like papillæ, similar to those of a cystoma proliferum papillare; in the other the papillæ were much smaller and less developed—cystoma proliferum glandulare. The walls of the cysts, which were situated in the recto-vaginal septum and could not be enucleated without the knife, consisted of fibrous tissue and epithelium, and in them were found several minute cystic spaces filled with thick, caseous and glutinous masses, and several microscopic accumulations of cells forming fissures in the fibrous tissue. The different stages of this cystic degeneration, which closely resembles that taking place in the ovary, are: accumulation of cells in a fibrous stroma, small cystic spaces without distinct walls, finally larger cystic spaces with walls, and, by confluence of several of these, large cysts. If the majority of anatomists did not deny the existence of follicles in the vagina, the epithelial lining of these cysts might lead us to seek for their origin in such glands; or we might attribute the epithelium to the persistence of the excretory ducts of the Wolfian bodies. This is merely a hypothesis, however, and we must therefore, for the present, still remain in uncertainty as to the ætiology of these cysts.

AN ENDEMIC OF MORBUS BULLOSUS NEONATORUM IN THE LYING-IN HOSPITAL IN LEIPZIG. By DR. AHLFELD. (*Archiv für Gynaekol.*, vol. v., part i., p. 150–159.)

COINCIDENT with a similar epidemic in the villages about Leipzig, a number of cases of this disease, which may also be called pemphigus neonatorum non-syphiliticus, occurred in the Lying-in Hospital. The eruption appeared unexpectedly on an average on the fourth day after birth, and lasted from one to fifteen days and longer; the vesicles enlarged and increased very rapidly, in a few cases with accompanying increase of temperature; their peripheries and bases were red and not sensitive; they appeared first on the neck and in the inguinal

region, occasionally on the back, side, feet, etc., and spread to the hairy scalp, the face, and the abdomen. A. never saw them on the palm of the hand or on the sole of the foot. New vesicles would appear daily. The general condition of the children was good, and of the twenty-five cases none died directly from the eruption; two died from inflammation of the umbilicus, arteritis, and phlebitis, and one from furunculosis consequent to the eruption. The mothers were generally healthy; only two had a somewhat cachectic appearance. The disease, according to A., is of a contagious character; perhaps fungi are the exciting cause; it does not depend on a cachexia, and differs from real specific pemphigus besides in being comparatively innocuous.

INTRA-UTERINE CICATRIZATION OF HARE-LIP. By DR. BURTELS. (*Reichert and Du Bois-Reymond's Archiv*, 1873.)

THE author details three cases of his own in which there were cicatrices found at birth, indicating that the hare-lip had united in utero, and, in addition, he gives an abstract of several other cases. He then proceeds to inquire how this cicatrization may be produced. In the first place there are two forms of hare-lip, that in which the lip alone is divided, and that in which the bones also are cleft; the former being simple and the latter complicated. Now, in the latter case, the divided bony parts may unite in utero, and the soft parts may remain divided, or may unite along with the bone. Doubtless some simple hare-lips originate in this way, being as it were the remains of complicated cases in which the maxillary and palatal parts have united. The soft parts of the upper are not formed in segments like the bony parts, but the upper lip grows down from above in a continuous layer, and from this it might be supposed that every case of simple hare-lip owed its origin to a complicated hare-lip, in which the bony parts had united. But the author points out that though the upper lip normally grows in a single piece, yet it owes its origin primarily to a number of germinal points corresponding to the original pieces of bone. These germinal points unite early in normal cases, and the lip grows as a single piece. But in certain cases the different germinal points take on a certain independency of growth, do not grow equally, so their union is disturbed. The longer the union is in being established, the greater will be the resulting cleft. In this way a simple hare-lip may arise without any division of the bones. But in whatever way a simple hare-lip has been formed, it seems to be still capable of a secondary cicatrization in utero. When union takes place at the earlier times of utero-gestation,

already referred to, there will be no proper cicatrix; but when once the formation of the part is completed, then any union will be accompanied by a cicatrix. As to the way in which the secondary cicatrization occurs, it may be by a process such as sometimes occurs after birth. The proximal edges of the hare-lip being in contact, the epithelium may give way, and the two raw surfaces unite with cicatrization.

DEATH OF A CHILD CAUSED BY INTRODUCTION OF CHYME INTO THE AIR-PASSAGES. (*London Lancet*, Sept., 1873.)

THIS very interesting case was communicated by Dr. Parrott at the last sitting of the Société de Biologie, and is the second of the kind that he has already observed. The child was aged one year, and, after being fed by the bottle, was put to bed at six o'clock and died at midnight, with all the signs of intense dyspnœa. At the post-mortem examination (ten hours after death) the two lower lobes of the lungs were found quite softened, grayish, having a smell of butter, and, in a word, having undergone the action of gastric juice. Altered milk was found in the trachea and bronchi. In this case, the milk contained in the stomach, and which doubtless had been taken in excess, was vomited, and, on account of the horizontal posture, had penetrated into the air-passages. Dr. Parrott drew the attention of his colleagues to the importance of the fact from a medico-legal point of view. He thinks that this occurrence must be rather frequent, as he has already witnessed two cases in his own sphere of observation.

PROPERTIES OF PANCREATIC JUICE AND OF PAROTIDEAN SALIVA OF INFANTS. (*Centralblatt für Med. Wissensch.*, No. 17, 1873.)

DR. KOROWIN, assistant-physician to the Children's Clinique of St. Petersburg, has conducted a series of experiments with the liquids taken from the pancreas and parotidean glands of several children who had died from intestinal or pulmonary maladies, and tried their fermentative action on starch. He has stated that the pancreatic juice during the first months of life does not possess the property of transforming starch into sugar; this property becomes manifest only after the third month, and attains its highest degree of intensity towards the end of the first year. On the other hand, parotidean saliva converts starch into sugar during the very first days of life, and it is possible to ascertain this effect of the liquid from birth. The action is more powerful as the child is more developed.

THE AMERICAN

JOURNAL OF OBSTETRICS

AND

DISEASES OF WOMEN AND CHILDREN.

VOL. VI.] FEBRUARY, 1874. [No. 4.

ORIGINAL COMMUNICATIONS.

CASE OF RETROFLEXION OF THE UTERUS IN THE THIRD DEGREE, CAUSING STERILITY; TREATMENT; PREGNANCY; VAGINISMUS PERSISTING AFTER CONFINEMENT.

By SAMUEL B. WARD, M.D.,
Surgeon to the Presbyterian Hospital, New York; Prof. of Anatomy in the Woman's Medical College of the New York Infirmary, etc.

Mrs. X——, married, age 25, consulted me May 5th, 1870, on account of sterility. She was a remarkably healthy, robust, fine-looking woman, in the habit of taking plenty of out-door exercise, appetite excellent, bowels regular—in short, did not know that she was the subject of any disease whatever. Her only complaint was, that she had been married three years and a half, and had never been pregnant.

Her husband, whom I knew also, was to all appearance a perfectly healthy, vigorous man, and had, by his former wife, two children, who are still living.

Mrs. X.'s menstruation was established at the age of fourteen, and had always come on every nineteen or twenty days with regularity; she had never gone over a single epoch without menstruating. Up to the time of her marriage the flow had been excessive; since that time it had diminished very much, and was, at the time she sought advice, somewhat more scanty than normal, lasting only two or three days. She suffered no pain at these epochs, and always went out as usual.

After seeing her two or three times, and considering her case, I came to the conclusion—and so informed her—that there must be some mechanical cause for her sterility, the nature of which could only be ascertained by an examination of the uterus. At the same time it was difficult to understand how there could be a mechanical impediment to impregnation, and yet no dysmenorrhœa whatever. The idea of a physical examination was very repugnant to her feelings, and I suggested that we should go to Dr. Peaslee, and so, perhaps, avoid unnecessary repetition of the examination. To this she finally agreed, on being told that it was absolutely impossible to do anything for her unless she was willing to submit to it.

We saw Dr. Peaslee on May 11th, 1870. Digital examination showed the uterus to be retroflexed in the third degree, but apparently free from any other trouble. Dr. P. introduced a uterine sound—its curve being directed backwards instead of forwards—found the organ to be the normal length, and before removing the instrument restored the uterus to its normal shape. This procedure gave rise to considerable pain at the time, which, however, only lasted for a few minutes. A ring-pes-

sary was then introduced, and Mrs. X. was advised to use a vaginal injection of flaxseed-tea every evening.

The next morning the patient came to my office, saying that the pessary was so small that it had slipped out of the vulva. From this date, May 12th, to June 15th, I tried a number of ring-pessaries of various sizes and different degrees of stiffness. There was no great difficulty in fitting one that would retain the uterus in a nearly normal shape and position; but the pressure, from above downwards, spread the ring laterally so much as to set up a vaginitis, and none of them could be worn for more than a few days at a time without causing so much pain and annoyance as to necessitate its removal. On June 15th I removed the last ring-pessary, the vagina being acutely inflamed, and discharging a considerable amount of muco-pus. The next ten days were devoted to restoring the vagina to a healthy condition by the use of astringent and soothing injections.

On June 25th I introduced an ordinary double-buckle pessary, which held the uterus nearly in its normal shape, and, in consequence of its rigidity, did not press upon or irritate the vaginal walls. On July 1st Mrs. X. went to the country, and did not return until September 1st. At this latter date she informed me that she had worn the pessary during her entire absence, and would not have known from any abnormal sensation that it was there. The degree of comfort with which she wore the rigid pessary was noteworthy, as compared with this discomfort caused by the flexible ones. Vaginal examination showed that the instrument was in its proper

position and the parts all healthy. Her general health was everything that could be desired, and she continued to wear the pessary until April 1st, 1871, the instrument being only removed for a few days soon after each menstrual epoch, in hope that she might become pregnant.

During September I ascertained by strict inquiry, after my suspicions had become excited, that Mrs. X. was, in addition to her other troubles, the subject of vaginismus. She never had connection with her husband more than once in the month; it then caused her "perfect agony," frequently syncope, and she always had severe pain in the back, headache, nausea and vomiting for hours afterwards, so as to be frequently compelled to remain in bed a part or the whole of the next day. It seemed very improbable that she would become pregnant so long as this condition of things lasted; but when it was proposed to her to have the sphincter vaginæ muscle ruptured, she put it off from time to time, saying that she had not the leisure to stay in bed.

She menstruated on Dec. 1st, and again on Dec. 20th, and not after that. The uterus at this time seemed somewhat gorged with blood, and, in accordance with the advice of Dr. Peaslee, I leeched the cervix uteri on Dec. 24th. She had connection with her husband on Dec. 11th, and not again until Jan. 21st, 1871, in consequence of Mr. X.'s absence from the city. The menses were due on Jan. 9th, but did not appear. On April 25th she felt life, on the evening of Sept. 30th labor began, and on the morning of Oct. 2d she was

delivered of a fine, healthy girl, weighing nine lbs., and evidently at full term.

Here are a series of facts of the accuracy of which there can be no doubt, and which enable us to determine the duration of pregnancy, in this particular case, if we admit that the period is about 280 days. I suppose that the ovum, the ripening of which caused the menstruation on Dec. 20th, was the one which was fecundated; and from that date to the 30th of Sept. of the succeeding year—the day on which labor commenced—was 285 days. But if this is so, then the spermatozoon which fecundated that ovum must have entered the uterus on Dec. 11th, and retained its vitality for *nine* days—a longer period than is commonly supposed possible. If we make the only other supposition allowable under the circumstances, that the ovum which matured on Dec. 1st was fecundated on the 11th, then we are met by two grave objections: first, that the fecundated ovum remained in the uterus notwithstanding a subsequent menstruation; and, second, that the period of gestation was 294 days. Cases are often met of women who say that they have menstruated during pregnancy, and especially during the early months; but when careful inquiry is made into the particulars, something unusual is almost always discovered, either in the quality of the discharge, its amount, or the period at which it occurs. Denman, and the late Hamilton, of Edinburgh, have declared their opinion "that suppression of the menses is one of the never-failing consequences of conception." There are numbers of cases on record—and they are so common that

every practitioner must have met with them—in which some kind of discharge takes place from the vagina during the early months of pregnancy, so closely resembling the catamenial flow as to be mistaken for it. In most recorded cases of this kind we find the accompanying remark that the discharge "was more profuse than usual," or that it was "more scanty," or "of a lighter color," or that "it did not come at the right time." The histories of other cases are of no value on this particular point, because they simply state that a trustworthy patient said that she menstruated during the first two or three months of her pregnancy. There are, however, a very few cases on record in which menstruation—regular as to quantity, quality, and time of appearance—seems to have occurred during gestation.

We are not disposed to quibble about words; but it seems a question, still to be settled, whether the discharge under these circumstances really comes from the body of the uterus, or does not rather, in most instances at least, come from the upper portion of the vagina and from the cervix. Still, for all practical purposes it may be considered proper to designate as *menstrual* any periodic flow from the vagina which is not the result of disease. In this case the discharge occurred on the very day when menstruation was expected, lasted the usual number of days, contained apparently just as much blood as usual—in short, was in every respect normal. It seems almost impossible that a newly-impregnated ovum should retain its attachment to the internal surface of a uterus whose blood-vessels

are constantly pouring out fluid during two or three days, and whose epithelial lining is undergoing desquamation; while we can easily understand that a spermatozoon might pass through the uterus prior to this process, into one of the Fallopian tubes, there fecundate an ovum and remain intact, while menstruation is going on at a point lower down. So the chances that Mrs. X. became pregnant on the day when she had connection with her husband, Dec. 11th, seem *very* small.

As to the other point: the duration of gestation is *said* to have been prolonged, in certain well-authenticated cases, to 300 days, and even more. But the circumstances attending these cases have always been so peculiar that Montgomery, in his "Essay on Pregnancy," p. 453, remarks, "we could hardly resist the conclusion that there must be a special providence in favor of young widows anxious to establish a claim to large fortunes."

Grouping together the 25 cases tabulated by Dr. Reid, "dating from a single coitus," and the 56 cases tabulated by Dr. Montgomery, "in which the day of fruitful intercourse was known," we have a total of 81 cases in which it was supposed that the duration of pregnancy could be accurately ascertained; and such would be the case if it were certainly known that the woman conceived not only in consequence of that coitus, but also during, or immediately after, it. In only 3 of these 81 cases did the period equal or exceed 294 days. Is it not very possible that in these 3 cases the spermatozoon may have remained in the genital

apparatus of the female for a few days, and then fecundated the ovum which matured at the *succeeding* menstrual epoch, and not at the *preceding* one? Thus the supposed duration of gestation might have been reduced in these cases by six or eight days, or even more, and brought within limits which no one would discredit.

William Hunter, and many others since his day, have observed that impregnation is much more apt to occur either just before or just after menstruation than at any other time. A mass of evidence proves that impregnation, though not impossible, is *very* rare at thirteen or fifteen days after cessation of a given menstrual flow. How else, then, can impregnation from a coitus occurring two or three days before a menstrual flow be so rationally explained as by supposing that the fecundating spermatozoön remains those two or three days somewhere in the genital apparatus of the female, and there retains its vitality? Two of the conditions which we know to be most necessary to its living are certainly fulfilled—the presence of warmth and of moisture. And if a spermatozoon can, as a rule, retain its potency for two or three days, why may it not occasionally do so for a week or more?

We are aware that some observers deny the possibility of this. For instance, Arthur Farre, in the supplement to Todd's "Cyclopædia," * says that they never retain their vitality for more than thirty hours at the furthest. It would seem that there must, however, be some mistake about this statement; for Allen Thompson † has observed living spermatozoa in the

* Vol. V., p. 668. † Op. cit., Vol. II., p. 465.

uterus of the bitch five or six days after connection, and other observers have noticed their presence in other of the higher vertebrates after even a longer period. From analogy we might conclude that they would retain their vitality for some days at least in the human female; and Seuckart and Wagner * state, from actual observation, that such is the case for "several days," though they do not specify how many.

Of the two possibilities in the case of Mrs. X., it seems to our mind much more probable that the ovum, escaping on December 20th, became impregnated by a spermatozoon, entering the uterus on the 11th, and required 285 days to reach maturity, than that an ovum escaping on December 1st was impregnated on the 11th and required 294 days to reach maturity, being obliged, in the meantime, to survive what appeared to be, in every respect, a perfectly normal menstruation. Of course the question remains to be answered, what became of the ovum of December 1st, and why was it not impregnated on the 11th? We can only reply that it was probably blighted within the first ten days of its existence, as so many millions of others have been under similar circumstances.

Montgomery (op. cit., p. 83) relates a case which seems entirely analogous to this one. "A gentleman who had been absent from his family for some months, returned secretly, and spent one night at home with his wife, in consequence of which she conceived, as the event proved, although the regular return of her catamenia, a week afterwards, in their usual quantity, had

* Op. cit., Vol. IV., p. 505.

led her to expect that she had escaped with impunity." On reading this short history, we could not help thinking that in all probability the fecundating spermatozoon remained in this woman's uterus during the week which intervened between the husband's visit and the next menstruation, and fecundated the ovum, which then matured. On looking up the original case, in Dewees (p. 168), it appears that this lady was delivered at the end of nine months *and thirteen days* from the day of coitus; and this case might be quoted as one of prolonged gestation—286 to 288 days. But it appears at a glance that if we deduct from this the seven days intervening between the coitus and the succeeding menstruation, we have the actual period of gestation, 280 days—just what is usually accepted. It is no more than fair to presume that many cases of supposed protracted gestation may be explained in this way.

On reflection, every one must admit that the "tables showing the period of utero-gestation, as deduced from a single coitus," are only accurate when impregnation immediately follows the act; otherwise they merely show the time which has elapsed between a fruitful intercourse and the birth of a child as the consequence thereof.

We must not lose sight of the fact that there are two questions of interest in connection with this subject. First, the purely scientific question, What is the period of human utero-gestation? And second, When a patient applies to us, how can we determine for her the date of her delivery? There seem to be enough facts on record to enable us to answer, to the

first, that the period is about 280 days. The difficulty in ascertaining the date of the commencement of gestation must always necessitate a cautious answer to the second question. We all know of numerous mistakes in reckoning on the part of accomplished accoucheurs, amounting in some instances to two or three months; and it behooves us always to be guarded.

This case is instructive, again, as regards the vaginismus. Mrs. X. suffered more in this way than any other patient I have ever seen, and as much as any I have ever read of. Nothing but her indomitable will, and her firm determination to become a mother, enabled her to endure the approach of her husband. Notwithstanding this she became pregnant; during gestation it disappeared entirely, and it was hoped that the birth of the child would prove a radical cure. In this, however, we were disappointed; for the difficulty returned after the confinement and proved as troublesome as ever. By ocular examination of the parts, I was unable to discover hypertrophied papillæ or any other cause for the vaginismus. Dr. Peaslee saw the case again on February 15th, 1872, and thought that a few of the papillæ were slightly enlarged on the inner surface of the left labium minus; but did not suppose the hypertrophy to be sufficient to cause so much trouble. Still, he brushed the surface with a solution of nitrate of silver, of the strength of twenty grains to the ounce, and recommended that the same application should be made once or twice a week. Strangely enough, no further application was necessary, and Mrs. X. has had no return of the trouble during the twenty-one months

that have since elapsed. On February 21st, 1873, she was delivered of her second child, having needed no treatment of any kind since last date.

It seems that we may learn from this case that a retroflexion in the third degree may exist, and be the cause of sterility, without manifesting its presence by any dysmenorrhœa, or any other rational sign whatever; that a degree of vaginismus, which commonly proves a source of sterility, is not necessarily so, and may sometimes be very readily relieved; and lastly, if our interpretation of the case is correct, we learn that a spermatozoon may remain in the Fallopian tubes, or elsewhere in the female organs of generation, and retain its vitality, for a period of at least nine days.

ON PROLAPSE OF THE UMBILICAL CORD, ITS CAUSE AND TREATMENT.

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(*Continued from page 442, Vol. VI.*)

VI. RELATIVE FREQUENCY OF THE PROLAPSE IN PRIMIPARÆ AND MULTIPARÆ.

As to the relative frequency of the prolapse among primiparæ and multiparæ, no average has as yet been accepted, the statements made by various investigators differing so very much; that at least my results may be precise, I must, in the discussion of this point also, con-

fine myself to the deliveries observed in the Lying-in House.

TABLE V.—RELATIVE FREQUENCY OF THE PROLAPSE AMONG PRIMIPARÆ AND MULTIPARÆ.

Lying-in House.	Out-door cases.
35 cases of prolapse to 2,977 multiparæ = 1 : 85 27 " " " " 2,923 primiparæ = 1 : 108 62 " " " " 5,900 deliveries = 1 : 94	243 prolapses among multiparæ 57 " " primiparæ 300 } 4.26 : 1
Prolapse 1.27 times more frequent among multiparæ than among primiparæ.	*Relative* frequency of prolapse among multiparæ and primiparæ = $\frac{4.26}{3}$: 1 = 1.4 : 1

Among the 5,900 parturient women there waited upon we have 2,923 primiparæ, in 27 of whom labor was complicated by prolapse of the cord; compared with these we find an almost equal number of multiparæ, 2,977, with 35 cases of prolapse (21 of which occurred in secundiparæ and 14 in pluriparæ).

So we see that the Lying-in House cases give us 1 prolapse to 108 parturient primiparæ, whereas among the multiparæ the ratio is as 1 : 85, making the occurrence of the prolapse somewhat more frequent among multiparæ than among primiparæ (1.27 : 1).

Though I have said that only the above compilation was to be thoroughly relied upon, I cannot refrain from giving the result of my calculations from the out-door cases, which are, to say the least, interesting, and claim a certain importance from their remarkable coincidence with the numbers obtained in the Lying-in House.

Among the out-door cases of labor in which we have prolapse of the cord, multiparæ were afflicted with this

complication in 243 cases, whilst it occurred but 57 times among primiparæ, this being a ratio of 4.26 : 1.

As I have no statistics which would give me the distribution of primiparæ and multiparæ among cases of normal labor in Berlin during the same time, I must take the generally accepted statement that upon an average 3 of every 4 parturient women are multiparæ; that cases of labor are 3 times more frequent among multiparæ than among primiparæ. We have found the prolapse in our out-door cases actually to occur 4.26 times more frequently among multiparæ, which would make the relative frequence of its occurrence among multiparæ and primiparæ as $\frac{4.26}{3}$: 1, or as 1.4 : 1, a ratio very similar to that obtained from the Lying-in House records.

Our cases show that *relatively* the prolapse occurs as a complication of labor almost as often among primiparæ as among multiparæ; I must acknowledge that when the contracted pelvis is excluded as a cause, the prolapse will become less frequent, but especially among primiparæ, as those of the causes which we have traced more particularly to multiparæ then become prominent.

This is a point which I must discuss more at length, it being of great importance in the ætiology of the prolapse.

Among the first to combat the assertion made by most authors, that the prolapse of the cord was by far more frequent among multiparæ than among primiparæ, was Martin, then at Jena, who had observed its

occurrence relatively almost as often in cases of first labor. It is this compilation of ours, of a very fair number of prolapses, justifying us in rather conclusive deductions, which has shown that the prolapse of the cord is almost as frequent an accident in the strong, rigid uterus of the primipara as in the more yielding womb of the multipara, and this is one of the urgent reasons which lead me to deny most positively that the main and primary cause of the prolapse is to be sought in the condition and action of the uterus.

Hildebrandt (Beiträge zur Aetiologie und Behandlung des Nabelschnurvorfalls bei Kopflagen, Magazin für Geburtshülfe, xxiii., p. 115), says that the most frequent and most important cause of the prolapse is found in a pathological condition of that organ, and *not* in any malformation of the pelvis.

This view he bases upon his observation of probably but a small number of cases in which he found the prolapse of the cord a very rare occurrence among primiparæ; a premise which we have seen is false—false even if we limit ourselves, as he has done in his article, to the cases of prolapse with head-presentation of the fœtus. He says that it is by far less often the contracted pelvis which prevents the head from descending upon the os than it is a deformity of the womb, or a malposition of the fœtus, caused perhaps by a pathological condition of the pelvis.

So much for his data; ours differ. In the Lying-in House the relation of primiparæ to multiparæ in the prolapse cases is 1 : 1.27; and even if we consider our vertex presentations separately, we find that 15 of the

36 occur in primiparæ, and 21 in multiparæ, which is no great increase in the proportion of multiparæ, the ratio here being 1 : 1.4.

It is certainly true that in multiparæ the occlusion of the os is more or less imperfect; dilatation takes place at a much earlier period of labor than in primiparæ, whilst the presenting head is still high in the pelvic canal, thus greatly favoring the occurrence of the prolapse by giving space through which the cord may readily glide, if more potent causes are acting which lead to this mishap. Moreover, among multiparæ we more frequently have transverse and shoulder presentations, and also the *venter propendens*, the result of repeated labors—circumstances which indeed greatly favor the occurrence of the prolapse, and but rarely occur in primiparæ. In these the contracted pelvis is the main cause of this dangerous accident; and we find this to be the case in 60 p. c. of all the primiparæ observed in the Lying-in House whose labor was complicated with prolapse of the cord.

As another argument to prove his theory that the prolapse is due mainly and primarily to a pathological action of the womb, Hildebrandt cites those cases in which the prolapse has been repeatedly observed in the same woman; he admits that a contracted pelvis frequently complicates these cases, but according to his reasoning it is not this, but the always equally insufficient action of the uterus which causes the prolapse of the cord. I will not deny the possibility that the prolapse of the cord in several successive cases of labor may be in connection with, or dependent upon, a pathological condition

of the uterus; yet I know of no single instance in which I could confidently assert this to have been the case.

In all such labors, whether observed in the Lying-in House or among the out-door cases, we find a contracted pelvis, and this is certainly the primary cause of the prolapse; how far the uterus may have suffered from this condition of the pelvis, and in what way its diseased state may have affected the prolapse, I, at least, cannot say.

One case only (No. 11 of the out-door cases) is an exception: the pelvis is moderately enlarged; it was the sixteenth child; several of the last had come as footling cases, with prolapse of the cord in one. Here we must indeed admit that the laxness of the tissues of the womb and abdominal walls, with malposition of the fœtus, were causes of the repeated accident. Another case in which prolapse was repeatedly observed (No. 17 of the out-door cases), I have placed among the normal pelves, as the measurements given show nothing decidedly abnormal, ant. post. 19 cm., inf. transv. 27.5, sup. transv. 28.5, oblique 21 cm. The somewhat insufficient length of the latter, but more particularly a consideration of the whole, lead me to look upon it as a somewhat contracted pelvis.

Michaelis and others have also observed the repeated occurrence of the prolapse in the same woman, always in combination with contraction of the pelvis. This very fact, observed by eminent authorities, and thoroughly established by our own cases, is to my mind a most striking proof that the contracted pelvis is one of the main causes of the prolapse, primary and pre-eminent.

It is interesting to study the various circumstances

to which the different authors, each searching for something new, have attributed the prolapse of the cord: thus Hohl accuses all such conditions which serve, temporarily or permanently, to change the normal and regular position of the fœtus *in utero*; he lays the main stress upon the position of the fœtus, as others do upon the condition of the uterus.

This is but an idle war of words. The difference between these various opinions is not an essential one, as all may be traced to the same fundamental cause.

C. APPEARANCE AND CONDITION OF THE PROLAPSED CORD.

The circumstances which complete the picture which the prolapse of the cord presents to us, the conditions under which it appears, the complications which surround it, are all of importance, more especially so for the treatment, and hence claim our attention. It is necessary that I should define the terms here employed, as they have heretofore been used indiscriminately, whereas I make a well-marked distinction between prolapse and presentation, and trust that it will be more universally adopted.

Prolapse of the Cord.—So far I have always spoken of the *prolapse of the cord*, that is, the appearance of the cord in the os, or its descent through the os, after the rupture of the membranes, as this really is the point of clinical importance, the condition which threatens the life of the child and calls forth our most active efforts for its relief.

Presentation of the Cord.—If the labor is under observation from the very beginning, we may often, in its

early stages, detect a *presentation of the cord.* By this term I understand its appearance in the os, within the *still intact membranes*, so that it may be reached by the examining finger.

In the Lying-in House we have 7 cases recorded in which the funis was found presenting, 7 of the 50 cases observed throughout from the very commencement of labor; thus showing that among every 7 cases of prolapse the funis had been presenting in but one. In all such cases, prolapse inevitably follows the rupture of the membranes and the escape of the waters, unless active measures are taken and circumstances prove very favorable for treatment.

Among the out-door cases the presentation of the cord was discovered in several instances, but these cases are useless to us for any comparison with regard to frequency of occurrence, as it was mostly the very fact of the cords having prolapsed which caused the attending midwife to summon medical aid; very few were observed from the commencement of labor. We see that the cases are rare in which the cord presents, where a loop of the soft, slippery, pulsating funis lies in the os, still enclosed within the fœtal membranes. The life of the fœtus is threatened in this situation, when the head presents, as the descending cranium may compress the cord notwithstanding the shielding presence of the waters.

It sometimes happens that the funis is not to be reached by digital examination, that we do not suspect it of presenting, and yet the fœtal heart ceases to beat, and with the escape of the waters a pulseless funis

prolapses, indicating that a small loop which had slipped down, though not far enough to present plainly, had been compressed by the descending head.

Ordinarily the threatening danger is not suspected until the waters escape, and with these the cord is forced down. Rarely does the cord prolapse *after* the rupture of the membranes. Of such cases we have but 4 on record among our entire number of prolapses; they occur under peculiar circumstances, when the waters escape at an early period of labor, while the os is still imperfectly dilated and the fœtal membranes tightly stretched across the small opening; the rupture in the membranes being but slight, and high above the os. Under such conditions it is impossible for the cord to prolapse until the os is more fully dilated and the membranes have been forced aside.

Extent of the Prolapse.—Usually one loop lies in the os or descends through it into the vagina, yet the cord may prolapse to a much greater extent, and protrude from the genitals; in a very much contracted pelvis, or in foot and cross presentations; several loops of the funis sometimes lie in the vagina; yet all these varying circumstances are of little interest and without importance either for the prognosis or treatment.

TABLE VI.—LOCATION OF THE PROLAPSED LOOP IN 36 CASES OF VERTEX PRESENTATION.

	Positions.			
	I.	II.	III.	IV.
Left sacro-iliac fossa	7	2	1	
Right sacro-iliac fossa	5	3		1
Left acetabular region	2	5		
Right acetabular region	5	1	1	
Behind the symphysis pubis	2	1		

Location of the Prolapse.—I define the locality of the prolapse as that part of the pelvis in which, either by an irregularity in the configuration of the maternal parts, or by an abnormal position of the presenting fœtal part, an unoccupied space is left between the two, through which the cord escapes. The determination of this point is of importance, as upon it depends to a great extent the pressure to which the funis will be subjected during the progress of labor.

In the discussion of this subject I shall confine myself to vertex presentations. I merely mention, that in foot, cross, or shoulder presentations the locality of the prolapse is more difficult to determine and is of far less importance for the prognosis; the prolapse in these cases usually takes place in that part of the pelvis to which the fœtal insertion of the funis, the abdominal front of the fœtus, is directed; this mostly being the sacrum, the cord is thus thrown into the shelter of one or the other of the sacro-iliac fossæ.

In vertex presentations as well purely theoretical considerations lead us to suspect the sacro-iliac fossæ as the space in which the funis most frequently finds room to descend, and for the following reasons:

The nerve of the pelvis in the sacro-iliac fossæ is such as to leave one of these recesses unoccupied in any position the head may assume; moreover, those vertex presentations predominate in which the face of the child looks towards one of the sacro-iliac synchondroses, placing the fœtal insertion of the cord in the posterior part of the uterine cavity, where we also find its placental insertion in by far the greater number of

cases; this throws the mass of the funis into the posterior part of the cavity, everything tending to guide a descending loop into the sacro-iliac fossa.

In the first vertex presentation in which the right oblique diameter * of the pelvis is occupied by the longitudinal axis of the fœtal head, the occiput near the left acetabulum, the forehead in the right sacro-iliac fossa, we would naturally seek the path of the prolapsed cord at one of the extremities of the unoccupied diameter, in the region of the right acetabulum, or of the left sacro-iliac synchondrosis.

In a second vertex presentation we should expect the prolapse to take place in the right sacro-iliac fossa or in the region of the left acetabulum.

Such are the theoretical deductions which have forced themselves upon me, and which, I am proud to say, I have been amply able to verify by a review of our cases.

Notwithstanding that the prolapse of the cord in vertex presentations so often occurs while the fœtal head is still high in the pelvis, occupying the transverse diameter, or that a deformed pelvis complicates the case, somewhat changing the normal course and the relation of the various diameters of the fœtal head to those of the pelvis, to a certain extent liberating the diameters theoretically occupied, we still find (Tab. VI.) that when the prolapse takes place in the first vertex presentation, the cord descends most frequently in the left sacro-iliac fossa and in the region of the right ace-

* I have named the diameters right and left oblique, according to their *posterior* terminal point.

tabulum. Among 12 cases with the fœtus in second position, the cord was in 8 instances found where we should theoretically expect it—thrice in the right sacro-iliac fossa, and five times in the left acetabular region; in 2 cases the prolapse took place in the left sacro-iliac fossa, a place which may easily become the seat of the accident when the course of the fœtal head is a somewhat abnormal one; in one instance the cord was found behind the symphysis, and in one case in the right acetabular region—a very rare occurrence.

We see that in the 36 cases of vertex presentation in which the location of the prolapsed loop is given, there are but three instances in which the prolapse took place in that section of the pelvis originally occupied by the occiput; one of these is the case just mentioned of a second position in which the cord prolapsed in the right acetabular region, which we may perhaps explain by the fact that in the very commencement of labor the presenting head, which in a later stage assumes the second position, occupies the right diagonal diameter of the pelvis, with the occiput in the right sacro-iliac fossa. Here the cord, subjected to pressure in a confined space, prolapsed pulseless; so also in one of the two cases of first position in which the prolapse occurred in the left acetabular region. The other case, in which a pulsating cord prolapsed in the section of the pelvis occupied by the occiput, we can only explain by the fact that the head first presented in fourth position, with the occiput in the left sacro-iliac fossa, leaving the left acetabular region unoccupied; in this the cord descended, and was probably

preserved from pressure by the rapid descent and delivery of the head after assuming a first position.

As far as our cases go, facts prove my theory; and I am warranted in stating that the prolapse of the cord, in vertex presentations, as a rule, takes place in one of the terminal points of that diagonal diameter of the pelvis which is not occupied by the fœtal head—the sacro-iliac fossa being the one which is most frequently the seat of the accident, on account of the formation of that section of the pelvis; less often is it the acetabular region. Very rare, and in most instances fatal, is the occurrence of the prolapse in any region occupied by the occiput, as its rounded shape, adapted to the formation of the pelvis, leaves but little space for the cord to descend, and subjects it, once prolapsed, to an unavoidable and fatal pressure. Equally dangerous, and not often met with, is the prolapse of the cord directly behind the symphysis pubis, where there are no soft parts to protect the funis, which must inevitably be crushed, forced between cranium and symphysis in the descent of the head.

Pressure upon the Cord.—The prolapse of the cord imperils the life of the child, not, as has often been supposed, by the exposure of the prolapsed loop to the atmosphere, but by the pressure to which it is subjected; and this depends upon the condition of the maternal parts, the kind of pains, the fœtal part which presents. In head-presentations where a hard unyielding part endangers the cord for a longer time, the location of the prolapsed loop, with regard to the pelvic diameter occupied by the fœtal head, is

the most important of all those points which determine the pressure to which the cord is subjected.

In all other presentations less danger threatens the cord, as it is often not subjected to pressure until the very last stage of parturition, and then not for any length of time; in many cases the pressure is so slight, scarce affecting the circulation in the umbilical vessels, that the powers of nature suffice to develop a living child, unaided by the hand of the obstetrician. Several such cases were observed in the out-door department, some few in the Lying-in House; one of these latter was even a case of vertex presentation, a first position, in which the cord was found presenting while the head was still in the brim, and the os not more than 1.5 cm. in diameter. The patient was placed upon her left side, the side occupied by the occiput, to hasten the descent of the head. The condition of the cord and the course of the labor were continually watched, and the patient directed how to assist its favorable progress by all means in her power; yet as there was no direct interference by the hand of the obstetrician, we may still call it a case of natural labor. The patient was forbidden to press with her abdominal muscles, and thus the membranes were preserved until the os was fully dilated. With the escape of the waters the cord came down in the right acetabular region, the anterior terminal point of the unoccupied pelvic diameter. The head being rapidly developed by a healthy action of the uterus and abdominal muscles, a strong, living child was born.

The two other cases in which the cord escaped any

serious compression were foot-presentations, in which no further assistance was rendered than is usual in such cases—manual delivery of the head.

Unfortunately, these are but exceptional instances, as the prolapsed funis is inevitably subject to a pressure which is greater or less according to the relative condition of the antagonistic powers; thus the compression of the cord may be but slight yet continued, or sudden and severe, causing either a slow diminution, or a rapid cessation of the interchange between the fœtus and its source of life, the placenta. The child no longer receives the full amount of purified, oxygenized blood, necessary for its existence. The accumulation of carbonic acid causes the fœtus to seek its oxygen from other sources; intra-uterine inspirations are the result; but it is not oxygen, not air, it is meconium and liquor amnii which fill the expanding lung. As long as the medulla oblongata is still stimulated to increased action by the accumulating mass of CO_2, a morbidly increased activity of the heart, a few rapid, weak inspirations follow, and the fœtus succumbs to the CO_2 intoxication—perishes in an asphyctic state.

Prolapse of Extremities.—Presentation, or prolapse of the superior or inferior extremities, not unfrequently complicates the prolapse of the cord, yet it is by no means to be considered as one of the causes, as Scanzoni takes it to be. The prolapse of the extremities is equivalent to that of the cord; both are brought about by the same causes, and those cases are exceedingly rare in which we are forced to look upon the one as the cause of the other.

In 3 of our 63 prolapse cases, from the Lying-in House the descent of one or the other of the extremities was noticed by the side of the presenting head, and in head-presentations alone is the prolapse of the extremities in combination with prolapse of the cord of interest. Among the out-door cases this combination is noticed much more frequently, as the conditions for its occurrence are by far more favorable in the greater number of multiparæ. In 50 of the 302 cases of prolapse of the cord, one of the extremities, of course mostly an arm, had prolapsed with the funis on account of the irregularity of the pelvic canal, or its incomplete obstruction by an abnormity in the descent of the advancing head.

Saxtorph, in his compilation, obtains a similar result; he finds prolapse of an extremity complicating prolapse of the cord in head-presentations 41 times out of 253 cases of prolapsus funiculi.

D. POST-MORTEM APPEARANCE OF THE CHILD.

We have seen in what way the prolapse of the cord endangers the life of the fœtus, and we must next ask, What are the anatomical changes which a child presents whose death has been caused *inter-partum* by compression of the prolapsed cord? Is the post-mortem condition such that the pathological anatomist can with certainty point to prolapse of the cord as the cause of death? These are questions of the utmost practical importance, which I can, unfortunately, answer in a but very indefinite way.

Hoping to obtain some definite and positive results,

I made very thorough post-mortem examinations of children whose death had been caused, during labor, by prolapse of the funis; at the same time, as a check upon my investigation, I examined, with equal care, the bodies of those who had perished *inter-partum* from other causes. The result was a negative one, so that I desisted from farther pursuit of an investigation which looked so unpromising.

I shall refer in my statements more particularly to the post-mortems of 13 thoroughly examined cases in which death had been caused by compression of the prolapsed cord. Some of the cases are taken from the books; the autopsies not having been made with special reference to the question now before us; the points here of importance have not always received the necessary consideration; yet the notes suffice to give us an understanding of the subject.

The pathological conditions found in the different subjects vary considerably; we mostly find a more or less marked venous hyperæmia of the internal organs, especially of the lungs, liver, and kidneys; the surface of the liver was frequently found to be very dark, congested along the margin, and pale, sometimes marbled in the centre. In two cases the organs were found exquisitely anæmic. Among the most constant findings are numerous small ecchymoses; in only 3 of the 13 post-mortems none were discovered; in several instances they were quite scarce, only a few small ones being found in the heart and in the kidneys. Ecchymoses most frequently occur in the lung and pleura, in the heart and pericardium, in the thymus gland as well as

upon the liver; they are more rarely found in the spleen and kidneys, and in the mucous membrane of the stomach. In a few of our cases small extravasations had occurred in the galea, beneath the periosteum, and in the brain.

The serous membranes of the large cavities of the body principally are threatened with ecchymoses, above all the pleura, for with every intra-uterine inspiration, which is an expansion of the thorax without a corresponding expansion of the lung on account of the lack of air; the external pressure upon the congested vessels, which counteracts the force of the blood from within, is diminished, the delicate walls of the capillaries can no longer resist, they burst, blood extravasates, and we have the ecchymosis. The œdema, which has been considered one of the most characteristic and most constant appearances in death caused by prolapse of the cord, we find in but 6 of our cases, and affecting very different localities, most frequently the scrotum, the umbilical vessels, the *porta hepatis*, and the lungs; in 5 cases the fact is especially mentioned that no œdema was found.

Small extravasations, of blood, ecchymoses, occur, as we have seen, more frequently than the œdema; and this is to be expected, as in most instances where pressure is exercised upon the prolapsed cord, the circumstances which favor the production of ecchymoses are given, whatever the individualities of the case may be, be it a slight and continuous or a sudden and severe pressure which constricts the cord. The œdema, on the contrary, is dependent upon a slight but long-continued

compression of the umbilical vessels, the increased pressure in the arterial system. Sudden and thorough compression prevents its appearance by the too rapid destruction of life.

The lungs are mostly found in a state of complete atelectasis; very rarely they contain a little air, and then only in but few of the alveoli.

Meconium and liquor amnii were, in two cases, found in the bronchi, probably not oftener because the air-passages were not in all cases carefully opened. Twice they contained a sero-hemorrhagic fluid, and twice they were found quite empty, normal.

The stomach, in one case, contained meconium and amniotic fluid.

The cavities of the pleura, pericardium, and peritonæum are in most cases more or less filled with a serous, slightly hemorrhagic fluid.

We see that these various cases have, to a certain extent, some changes in common, yet not one which we find throughout, not one which we might call pathognomonic; and yet we must ask, Is there nothing which is characteristic for a death caused by prolapse of the cord? the œdema? the ecchymoses? My own investigations, as well as the records of the Berlin Lying-in House, records of a large number of post-mortems, prove that the very same changes are also found in children who have perished from other causes during parturition.

I have found the same œdema, even the œdema of the genitals, in head-presentations; in breech-presentations it is, of course, a usual occurrence; ecchymoses are quite frequent, even in connection with complete

atelectasis of the lungs, and they occur in the same places, upon the pleura, the pericardium, and the peritonæal covering of the liver. The exudations in the serous cavities are likewise found. This may at first seem strange, yet it is readily explained when we remember that the same conditions prevail in a breech-presentation as in a prolapse of the cord; the same anatomical changes are called forth. But when the organs of a fœtus which has perished while passing the pelvic canal in a head-presentation display the same complication of symptoms—œdema, ecchymoses, meconium, and liquor amnii in the bronchi—we must naturally suppose, though no prolapse was observed, that a compression of the cord has taken place *in utero*, where it was more exposed, being coiled around the neck; this seems to be proved by the post-mortem condition of two cases, which appeared very striking to me.

Lying-in House, 22, 2, '72. Child of Otilia H.; vertex presentation; cord coiled twice around the neck; œdema scroti; lungs containing air; ecchymoses in all organs; vernix caseosa and meconium in the bronchi; œdematous condition of the umbilical vessels.

Out-door cases, 26, 10, '71. Child of Agnes T.; vertex presentation; pressure upon the coiled cord; bloody serum in the abdominal cavity; atelectasis of the lungs; ecchymoses upon liver and lungs.

The same anatomical changes are also produced by premature detachment (expulsion) of the placenta (out-door cases, Ferd. H., 6, 2, '72); yet they may even occur, and it is my duty to point out this fact, in simple cases of head presentations in which it is impossible for

us to refer them to any of the above-mentioned complications.

I cannot concede that one of the umbilical vessels, veins or arteries, is more subject to pressure than the other on account of their anatomical conditions, as has been asserted by many; they are enveloped by the same protecting tissue, Wharton's gelatine, and the difference in the structure of their walls is so slight, that no theories can be based upon these circumstances; the one cannot resist compression more than the other. It is the position of the cord, the shape of the parts between which it is crowded, and the part of the cord which is most compressed, which causes the flow of blood through veins or arteries, or through both, to be checked. This gives us an explnation for the varying appearances of hyperæmia and anæmia.

To conclude, I must again state that the post-mortem examinations of the children whose death was caused by prolapse of the cord has given us but a negative result, as it is nothing more than a death from asphyxia, which the fœtus suffers from so many other causes; the circulation of the blood is hindered, checked, the all-important oxygen is no longer supplied, and the fœtus perishes in a CO_2 intoxication.

E. DIAGNOSIS.

The prolapse of the cord is easily diagnosed, so also a simple presentation of the cord, provided it is a pulsating loop we are dealing with, and not too high in the pelvis, at a very early stage of labor, or protected from touch by great tenseness of the fœtal membranes.

A possibility of a mistake in the diagnosis may arise if the presenting cord has ceased to pulsate and the os is but little dilated; but this will easily be rectified upon more perfect dilatation of the os.

F. PROGNOSIS.

The risk to the life of the child from the prolapse of the cord would seem great, according to our results from the Lying-in House and out-door cases; the mortality is indeed large in itself on account of the unfavorable circumstances under which the obstetrician is forced to act, but not large, on the contrary favorable, as compared with the results of others.

TABLE VII.—MORTALITY.

Presentations.	Lying-in House.				Out-door Cases.				Total.			
	Saved.		†		Saved.		†		Saved.		†	
	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.
Vertex presentation.	11	31.4	24	68.6	65	39.	102	61.	76	36.7	126	62 3
Face "	1	100.	0	0.	3	60.	2	40.	4	66.	2	44.
Breech "	2	100.	0	0.	2	25.	6	75.	4	40.	6	60.
Foot "	13	81.	3	19.	36	68.	17	32.	49	71.	20	29.
Transverse "	0	0.	4	100.	23	54.	20	46.	23	50.	24	50.
Shoulder "	4	80.	1	20.	11	42.	15	58.	15	50.	16	50.
	31	50.	32	50.	140	46.5	162	53.5	171	47.7	194	52.3

Of the total number of 365 cases of prolapse 171 of the children, 47.7 per cent., were saved (Tab. VII.); in the Lying-in House the number saved is greater, a little over 50 per cent.; in the out-door department only 46.6 per cent.

This looks unfavorable, but the result is a very fair one for hospital practice, and very fair when com-

pared with the average results of most obstetricians; thus, out of the 743 cases of prolapse of the cord compiled from various authorities by Scanzoni, only 335 of the children were saved, 45 per cent.; even less fortunate than our out-door cases. Michaelis did not save over 26 per cent. Churchill, in his work, has gathered a large number of cases of prolapse of the funis from all possible sources, and finds that 47.9 per cent. of the children were saved. To account for this favorable result, I need but state that Churchill has followed the good old custom and cited the cases of Mesdames Boivin and Lachapelle, which are so wonderfully successful. I for my part can place no faith in them, and deem it time that these myths be stricken from our roll of facts.

Our results are least fortunate in cases of *vertex presentation;* out of 202 such, the life of the child was saved in only 76, 36.7 per cent. This is accounted for, not only by the fact that the fœtal part, which already threatens the cord at an early stage of labor, is large, hard, and unyielding, but also by the serious troubles which complicated these cases—the 22 craniotomies, and the cases of placenta prævia. Then we have quite a number of the out-door cases in which assistance was asked after the cord had ceased to pulsate. Deducting all these, we have left 111 cases of vertex presentation complicated with prolapse of the cord, which were amenable to treatment, and which were treated for the prolapse and not for any complication. Out of these 111 simple cases, 65 per cent. of the children were saved—a result which, as we will soon see (Tab. IX.),

was achieved in the out-door department as well as in the Lying-in House.

The mortality among the *face-presentations* is smaller, strange to say, than among vertex presentations; of the 6 face-presentations observed among our cases, 4 of the children were saved.

The number of cases being so limited, I should not deem myself justified in making any general deductions, more particularly so as it does not seem rational that the face-presentation, dreaded under ordinary circumstances, should, when complicated with prolapse of the cord, be less dangerous to the life of the child than the vertex presentation. The reason for this strange result is to be sought in the fact that in these cases medical assistance is procured as soon as the face is found presenting, often long before the prolapse takes place. The case thus comes under observation in a much earlier stage of labor than a case of prolapse in an ordinary vertex presentation, thus giving greater promise of success to the efforts of the obstetrician in behalf of the threatened existence of the child.

But few *breech-presentations* are recorded, and these remarkably unfortunate, the life of the child being saved in but 4 (40 per cent.) of the 10 cases which came under observation. The 2 cases treated in the Lying-in House, twin-children in each instance, were both successful.

Foot-presentations are our most successful cases, and fortunate it is, as they are very frequent, ranking in number next to vertex presentations. Among our 365 cases of prolapse, we have 69 foot-presentations,

with 49 of the children, 71 per cent., saved; even in the out-door department 68 per cent. were saved—68 per cent. of all cases observed, including those in which the obstetrician found the prolapsed cord cold and pulseless upon his arrival.

Of the foot-presentations complicated with prolapse, which were observed in the Lying-in House, 81 per cent. were saved, in fact 100 per cent., for among the 3 still-born in those 16 cases, we have 2 premature deliveries (fœtus of not much over 6 months), and one child, probably syphilitic, already in process of maceration: these we can certainly exclude. In the remaining 13 cases the children were all saved; so that in the Lying-in House not one of the viable children was lost in the cases of foot-presentation complicated with prolapse of the cord.

The prognosis offered by *transverse and shoulder presentations* is very much the same, and more fortunate than we might expect it to be. In the 47 transverse as well as in the 31 shoulder presentations which we find among our total number of prolapses, 50 per cent. of the children were saved. This fortunate result I account for by the fact that in these cases the cord is less endangered by pressure, and that medical assistance is sought betimes.

We see then that in the prolapse of the cord the prognosis is most favorable to the life of the child when the latter enters the pelvic canal with the feet presenting. Next to foot-presentations, but with by far more risk to the child, come transverse and shoulder presentations; the most dangerous are vertex presentations.

The number of carefully observed breech-presentations is so limited that I cannot accept the result they give us as a standard. The prognosis in breech-presentations is at least equally favorable with that offered by transverse and shoulder presentations.

So much for the risk to life as affected by the condition of the child itself. The points most important for the prognosis, however, are those which we find on the side of the mother. A prolapse which takes place in a primipara gives a prognosis much less favorable to the life of the child than one which occurs in a multipara. To only 34 per cent. of deliveries complicated with prolapse of the cord in primiparæ, which terminated favorably for the child, we have 50 per cent. of the children of multiparæ saved.

That a first labor should be so much more dangerous to the child in cases of prolapse, is partially accounted for by circumstances already mentioned, which I here recapitulate:

1. The contracted pelvis, which prolongs and endangers labor, is more frequent in primiparæ than in multiparæ: 68 per cent. of the primiparæ showed a deformed pelvis, while only 56 per cent. of the multiparæ were so affected.

2. Vertex presentations, which render the prognosis more unfavorable, occur more frequently in primiparæ than in multiparæ.

3. The rigidity of the parts in primiparæ causes a prolongation of labor which greatly increases the risk to the child; the os but slowly dilates, and, being firm and rigid, renders any operation more tedious and diffi-

cult. It is especially the greater laxness in the tissues of the uterus and the circular fibres of the os which makes the prolapse of the cord a much less dangerous accident when occurring in a multipara; labor goes on more rapidly, the cord, if compressed, is endangered for a shorter space of time; the os, being more yielding, not only dilates more readily, but causes less compression, and, above all, gives ready entrance to the hand of the obstetrician at a comparatively early period of labor.

The contracted pelvis causes increased risk to the life of the child by making the labor more tedious and rendering any operation undertaken for the preservation of the child more difficult. In extreme cases it is of course the deformity of the pelvis in itself, and not the prolapse of the cord, which necessitates an operation mostly difficult and dangerous.

Taking into account the various points considered, we must say that the prolapse of the cord, *with all its complications*,—the contracted pelvis and the operations consequent thereupon, the premature deliveries and placentæ prævиæ, the tardy arrival of the obstetrician, etc.,—make the prognosis for the life of the child an unfavorable one, over 50 per cent. of the children having perished. If we consider the prolapse of the cord as such, theoretically, if we take those cases in which the prolapse is the only danger which threatens the child, and when obstetrical aid is at hand, we may call the prognosis a passably fair one. In cases of this kind, as observed in the Lying-in House, 72 per cent. of the children were saved. In foot-presentations the safety

of the child can be predicted with an almost unfailing certainty. In transverse and shoulder presentations the result is but a trifle less favorable than it usually is in these presentations, when not complicated with prolapse of the cord. Vertex presentations are the most dangerous, and even in pure cases of prolapse, free from any complication, they give a rather unfavorable prognosis. In cases of this kind (Tab. IX.) 65 per cent. were saved, and this I consider a true average per cent., as it is the result achieved in those 111 simple cases of vertex presentation, complicated with prolapse, excluding all cases in which the labors of the obstetrician were not confined to the preservation of the child.

The prognosis in each individual case, of course, varies with the attending circumstances, position, presentation, stage of labor, pressure of the waters, size of the os, location of the prolapse, kind of pains, condition of the mother, etc.

Finally, in view of the data here presented, we can give a somewhat better prognosis for the life of the child, in cases of prolapse of the cord, than most authorities have hitherto ventured to do.

Among the large number of our cases we have not a single instance in which the life of the mother was in any way endangered by the prolapse of the cord as such; for instance, by hemorrhage occasioned through premature loosening of the placenta in cases where the cord is drawn over the head, as some authors relate them.

That the death of the mother followed in a number of our cases, which include so many very much contracted

pelves and placentæ prævіæ, is not surprising; but it was caused in every instance by the complication, and never by the prolapse itself.

CONGENITAL SYPHILIS IN SIX SUCCESSIVE INFANTS.

BY WM. T. TAYLOR, M.D., Phila, Pa.

(Read before the Philadelphia Obstetrical Society, July 3, 1873.)

MRS. JULIA M. was married in 1866, at the age of 18 years, and soon after becoming pregnant, gave birth to a premature child at five and a half months of utero-gestation, having had a chill 4 days previous to her labor.

She became pregnant a second time; had a chill one week before the sixth month of utero-gestation, when she again had a still-born child.

Her third pregnancy occurred in 1868, when she had a chill at the end of the seventh month of her pregnancy, followed in 10 days by labor, when another dead babe was born, whose skin was exfoliating.

Her fourth pregnancy occurred, and at the eighth month she had a chill, followed in 2 weeks by labor. Her health had been very good, and the child quite vigorous during its uterine life. In consequence of her former misfortunes, she was very careful of herself, and had met with no injury.

This child was very repulsive, for the skin was peeling from its whole body.

After its birth she had a copious secretion of milk, which disappeared rapidly under the local application of ext. belladonnæ.

Again she became pregnant for the fifth time, and passed through the whole period of utero-gestation successfully. Her child was born apparently healthy and strong, but when 3 weeks old an eruption appeared on the feet, which extended gradually over the body. This eruption had the appearance of bullæ filled with a sero-purulent liquid, which burst, leaving sores.

When 8 weeks old the child was attacked with a diarrhœa, which in a few days caused its death.

During her sixth pregnancy she came to engage my attendance; and being in the seventh month of utero-gestation, I gave a teaspoonful 3 times a day of the following mixture:

℞. Hydrarg. bichlorid., gr. ij.
Potas. iodid., ʒ ij.
Aquæ font., ℥ j.
Syr. sarsap. co., ℥ iij.

If I had been aware of her pregnancy sooner, I should have used the medicine earlier, with the hope of removing the syphilitic taint from her babe.

On April 13th, 1871, she gave birth to a very large, fat, healthy-looking girl, after an easy labor, and in a few days had a profuse secretion of milk, which the child eagerly took.

On April 19th the mother had a chill, followed by a copious perspiration and two or three discharges from the bowels, which prostrated her very much. She had difficulty in breathing, pain in the stomach, and was

very nervous, assuring me that she was dying, and that I should not see her alive in two hours. The secretion of milk was arrested, but the lochia were quite profuse. An antispasmodic relieved her, and under the use of cinchona and valerian she soon recovered.

When the child was two weeks old, there was some excoriation of the skin on the neck, with pustules on the palms of the hands and on the soles of the feet, which extended to the thighs and nates. There was also an eruption of the same character about the mouth. I gave it a teaspoonful three times a day of the following:

℞. Hydrarg. c. cretâ, gr. xij.
Syr. rhei aromat., ʒ ss.
" sarsap. co., ℥ j.

May 1st. The pustules on the hands and feet are dry; the excoriation of the neck and the eruption on the nates are better; in fact, the disease is fast disappearing. About this time the babe had to be nourished wholly on cow's milk, for the lacteal secretion of the mother had ceased; when it became affected with a diarrhœa and vomiting, which in a few days terminated in death.

Since then she has not been pregnant, but I have advised her that if she becomes so, to report to me early, so that I can put her on the use of antisyphilitic medicines—hoping by such means to prevent her offspring from becoming affected with the venereal poison.

Her husband denies having ever had the disease, yet being a "gay and festive" youth, I have reason to doubt his veracity; his wife is perfectly healthy.

EARLY PREGNANCY.

BY ROBERT P. HARRIS, M.D., Phil., Pa.

(Read before the Philadelphia Obstetrical Society, May 1, 1873.)

IN a review of the last volume of the "Transactions of the Edinburgh Obstetrical Society," which I presented in the April, 1873, number of *The American Journal of the Medical Sciences*, there appeared the report of a case of early pregnancy by Dr. James Young, the subject of which was a white girl who commenced to menstruate at 13 years and 7 months, gave birth to a large male child at 14 years, 10 months, 13 days, and was delivered of a second when just 16 years old. My remarks upon this case, meeting the eye of Dr. Charles M. Ellis, of Elkton, Maryland, have been the means of bringing to light the reports of two cases of a more remarkable character, which I now present:

1. A white girl, born September 22d, 1859; began to menstruate when 11 years and 4 or 5 months old; gave birth to a male child, rather over-size, on June 21st, 1872, under the care of Dr. Ellis, when 12 years and 9 months old. The mother was stout and well-developed, weighing at the time of her delivery about 100 pounds. She had a natural labor lasting eighteen hours, the vertex presenting in the second position, and the perineum escaping laceration. She had an abundance of milk, and nursed her child.

2. A mulatto girl, born October 1st, 1848; commenced to menstruate in summer of 1860, at the age of 11 years and 9 months; gave birth to a well-developed

female child, September 20th, 1861, when 10 days under 13 years old; and was a second time delivered, the child being a full-sized male, May 2d, 1863, when 14 years and 7 months old. The father of the first child was a white boy of 17.

A somewhat similar case was reported in 1849, by Dr. George A. Ketchum, before the Medical Society of Mobile, Alabama. A negress, just 13 years old, gave birth to a female child at full term, which at the age of 10 years and 9 months began to menstruate, and at 12 became pregnant. Before the mother was 16 years old she gave birth to a second daughter, whose menses first appeared at 7 years and 6 months. If the first daughter became a mother in due time, as anticipated, the first-mentioned negress must have become a grandmother at 25 years and 9 months. Sexual precocity is in many instances inherited.

A negress under 15 (exact age not given) became the mother of twins, at Nassau, New York, in 1822; but I do not regard this as so remarkable as the second case given by Dr. Ellis, where two single births occurred at the age of 14 years and 7 months. We have not known this to be exceeded in the United States; but the late Prof. Chas. D. Meigs reported the case of a girl of Spanish blood, at Maracaibo, who gave birth to one child at 12 years of age, and twins before she was 14.

In my researches upon "Early Puberty," read before this Society,* I referred to three *well-authenticated* cases of white American girls, all younger than those just related. One of these occurred in the State of

* Published in *The Amer. Jour. of Obstet.*, Feb., 1871.

Kentucky, a second in Massachusetts, and the third in this city. The Kentucky mother became such at 10 years and 13 days, the Massachusetts at 10 years, 8 months, and 7 days, and the Philadelphia at 11 years and 3 months. The first was a case of *infantile* sexual precocity, and the others belonged to a much later period, the menstrual function having been established but a few months prior to conception. All had well-developed pelves, large mammæ, and the general marks of womanhood, and bore living children.

Although there is a general sexual precocity in tropical countries, *freaks of nature*, by which young children of either sex are made to approximate the early development of the lower animals, are to be met with even as far north as St. Petersburg, where it is claimed that a girl became a mother who was under 9 years of age. Sir Astley Cooper saw a girl in Scotland with a full-developed pelvis at 7 years and 5 months, who, from his description, could no doubt have become a mother at the age claimed at St. Petersburg.

Fortunately, these very precociously-developed female subjects differ, as a general rule, from their counterparts of the male sex, who more closely resemble the lower animals in their salacious propensities, else we should more frequently meet with juvenile illegitimacy. We have several times met with cases where the menstrual function was established between the ages of 9 and 10 years, in girls whose physical development was in correspondence with their sexual, and in whom it was highly probable that impregnation was possible; but in none of them was there any apparent

change as to their moral relationship with the male sex. They were all from the higher walks of life, and carefully trained, otherwise they might have been brought under the influence of temptation as in the examples reported.

The *incipiency of menstruation* in our large cities, as a general rule, marks only the gradual approach of the nubile period, and occurs before there are very decided evidences of womanly development, especially in the maturity of the pelvic diameters; so that the possibility of conception is still quite remote. Pelvic expansion, which appears to have been general in cases of early pregnancy at any age, enabling the subjects of it to bring forth living children of full or nearly full size, is evidently only in its incipiency in a large number of young menstruous girls.

The *preparatory period*, which usually exists between the first appearance of the menses and the age of possible conception, varies from a few months to several years; but there have been instances in which impregnation followed the first menstrual epoch, or even took place before it had appeared. In tropical countries, where young menstrual girls are given in marriage, impregnation very rarely takes place until some time has elapsed, thus marking the duration of this period of sexual preparation. In cases where sexual maturity is attained at the age of 9, 10, 11, or 12 years, we have the conditions which, being sometimes found in the immorally or carelessly trained, lead to juvenile illegitimate pregnancy.

The precocious maternity in large manufacturing

towns, where thousands of very young girls are congregated together in long, over-heated work-rooms, is no doubt to be attributed to the stimulating effects of a high temperature acting upon their sexual system, and the immoral surroundings of such a life. Some of the most remarkable examples reported in England have been thus accounted for by medical observers. Although menstrual precocity belongs to no special social position, it very seldom leads to early pregnancy except in the lower walks of life. This remark is of course not intended to apply to the inhabitants of tropical regions, where the normal age of nubility is much earlier than with us. Of the three most precocious of the American cases, one was the daughter of very humble parents, another was born in an almshouse, and a third was raised by her mother in a house of prostitution. As there are, as near as can be computed, four or five girls in every thousand in this city who menstruate before they reach the age of ten years, it will be very readily seen that moral influences are the main preventive of premature maternity.

A CASE OF PUERPERAL ECLAMPSIA.

By R. A. CLEEMANN, M.D., Phila., Pa.

(Read before the Philadelphia Obstetrical Society, August 7th, 1873.)

The patient was an American lady, of nervo-sanguine temperament, highly excitable and self-indulgent, aged 33 years. She had had during the ten years

of her married life two still-born children, at about full term, and at least two abortions; with which events there was a history of profound albuminuria, convulsions, and mania.

On January 27th, 1870, having reached the middle period of another term of pregnancy, she fell suddenly to the floor while approaching the tea-table. From the testimony of a servant in attendance, this appears to have been due to a convulsive seizure; the lady herself was unaware of any muscular contortion, or loss of consciousness, declaring that she seemed merely to lose control over her limbs. I saw her within a half-hour after her fall; she was then hemiplegic on the right side; when she protruded her tongue, its point was deviated to the same side; and there was observed some distortion of the face, the lack of normal expression being also on the right. Her mental faculties seemed at first little if at all disturbed, her features wearing merely a look of anxiety, but before long she manifested confusion of ideas and difficulty of speech. Her pulse was hard and reached 98 beats in the minute.

On inquiry, I learned that up to this time in her pregnancy she had felt unusually well, and had been in excellent spirits; but that her urine had been recently found to be albuminous by Dr. E. Wilson.

In a day or two her mind became perfectly clear, gastric irritability, which had been present, disappeared, and the paralysis diminished in some degree, general symptoms of asthenia remaining; subsequently there slowly returned a slight increase of power over the affected muscles.

After six weeks had gone by the patient had three convulsions (March 6th); these were preceded, during several days, by some pain in the left lumbar region, and for two days by a slight appearance of œdema—without pitting of the integument on pressure—and some difficulty of respiration, a wheezing sound being heard at the close of expiration. Meanwhile the urine had become loaded with albumen. Coma—not profound, the patient being easily roused—with irritability of the stomach, followed the convulsions, and persisted for a week, the urine all the while containing the same large amount of albumen. At the end of this time an entire ovum was expelled from the uterus, after a labor of four hours' duration. The fœtus had advanced to six and a half months, and was dead; the placenta was small and beginning to degenerate. Four hours subsequent to the parturition the patient had an evacuation of urine (9 P.M.), and this was repeated several times before the next morning's visit.

Till the third day following, with the exception of an alarming, but evanescent, syncope on the evening of March 14th, the patient did well, while the albumen in the urine diminished to scarce a trace. On this day (March 16th) the pulse, not wanting in fulness, ran up to 100 beats in the minute, while the patient talked incoherently to herself, though answering rationally the questions put to her. The breasts were hard and swollen; the œdema was scarcely to be perceived in the face, and had disappeared from the paralyzed extremity where it had been especially observed. There had been a large evacuation from the bowels during the previous

afternoon, followed in a few hours by another. Towards evening she became very restless, but after 11 P.M. (at which time a hypodermic injection of $\frac{1}{8}$th gr. morphia was given), slept quietly for two hours. She was then roused to take some milk-punch, which she received unwillingly, appearing much frightened and disturbed. Quieted by her nurse, she was once more tranquil for about half an hour, when she began throwing off the bed-clothes and attempting to rise from the bed, manifesting in her exertions a good deal of muscular power; finally, shortly before I reached her, froth appeared about her mouth. I found her in a state of extreme prostration, with a fluttering, scarcely perceptible pulse. From this condition, after uttering a sharp cry and after a few long gasps, she rallied; the pulse becoming fuller and of 100 beats in the minute. An attempt at external stimulation was made, but the patient suddenly died, respiration ceasing first, the heart stopping afterwards.

In the treatment of this case, rest in bed was enjoined from the time of the paralytic seizure. Free excretion from the kidneys was insured by the continuous use of carbonate of potassa, and from the bowels by senna and other evacuants, while the strength of the patient was fostered by iron and different tonics, stimulants, and systematic nourishment. Chloric ether, hydrate of chloral, and opium, were prescribed as anodynes and soporifics, the last drug very cautiously. For the paralysis, friction was first used, then nux vomica, and finally faradization. In the convulsions of March 6th ether was administered by inhalation.

A very striking feature of the above record is the occurrence of convulsions followed by persisting paralysis in the early period of mid-pregnancy. In regard to the nature of the convulsive movements, unfortunately the testimony is vague. The muscular disturbance may have been merely such as occasionally accompanies ordinary attacks of apoplexy, and, therefore, symptomatic only of sudden intra-cranial disturbance; but the history of the previous pregnancies of the patient and the albuminous condition of her urine make more fair the presumption that puerperal eclampsia had supervened. The complication of true vascular extravasation within the cranium is, however, inferred, from the involvement of the muscles of the tongue and of the face in the subsequent paralysis, from the lack of improvement in the power of motion, after a considerable lapse of time—even, indeed, when the uterus had discharged its contents and the urine was free from albumen—and from the character of the pulse after the accident, which also supports this view. But the condition of the patient with respect to vascular tension, at this time, was not considered such as to warrant venesection; and subsequently asthenia contra-indicated this measure. The opportunity for employing the other most prominent therapeutical resource in puerperal eclampsia—the emptying of the uterus—presented itself with the convulsions of March 6th, and during the subsequent week of coma. But it will be observed that this was left to the initiative of Nature, who proved herself capable of accomplishing it successfully without aid. After delivery, the kidneys were

freed from congestion by copious secretion, and appeared, in the absence of albumen from the urine, to be in a condition favorable to returning health.

But the patient died from apnœa, since the heart was still beating after respiration had ceased. In connection with this mode of death it is interesting to note that the patient, with a cry and a few long gasps, rallied from the syncopal attack in which I found her just previous to her death. This succession of phenomena resembles what occurs in some instances of laryngismus stridulus in young infants; and when we recall that the laryngeal spasm is sometimes accompanied by general convulsions, we may presume incomplete eclampsia expressed here. The determining cause of these symptoms, and of the intra-cranial damage which annihilated the function of the medulla oblongata, may possibly be found in the mental shock of a domestic trouble which became aggravated at this critical period.

ON HERPES GESTATIONIS:

A RARE AFFECTION OF THE SKIN, PECULIAR TO PREGNANCY.

By L. DUNCAN BULKLEY, M.D., New York.

(Read before the New York Academy of Medicine, February 5th, 1874.)

THE eruption, the history of which is here presented, differs materially from the forms of vesicular disease commonly known and described, but is of a character so distinct and yet so marked in each of the nine cases here analyzed, that it claims recognition and descrip-

tion among the cutaneous lesions liable to be met with.

I will first give the clinical history which furnishes my text, and let the other cases and commentary follow.

Mrs. J. H——, aged 32½ years, was confined with her first child in Nov. 1870. Two months previous to her delivery, an eruption began to appear, first and chiefly on the hands and feet, subsequently involving to a greater or less degree all the rest of the body, except the head. This eruption, which I did not see, is described as beginning in papules, which rapidly developed into vesicles, while, later, blebs were formed, especially on the feet about the toes and on the soles, of irregular shape and size, from one-half to one inch, or even more, in diameter; the vesicles, which were generally in groups, also varied in size from very minute elevations to the bullæ above described. After these had ruptured or were punctured they dried up, leaving only a brownish stain; there was at no time any exuding surface resembling eczema, and though the contents of the vesicles became turbid, the eruption could never be called pustular. The affection of the skin was attended with intense itching, and after it had become extended was accompanied with much prostration and considerable fever, a pulse of over 100, and a temperature of 104° Fahr.

The disease did not seem to be affected by the most varied treatment which was employed for her relief, but towards the very end of gestation disappeared gradually, so as to be almost entirely absent on the birth

of the child, after having lasted two months. One or two days after delivery the vesicles again made their appearance in a pretty general crop, which lasted for a few days and then dried up slowly, yielding at that time much discharge. During the eruption she was troubled with neuralgic seizures about the chest, which ceased with the cutaneous manifestations of disease.

After the disappearance of the eruption, subsequent to delivery, there was no sign of a recurrence for more than 2½ years, when she again became *enceinte*. In the interval, however, commencing several months after the birth of the child, she was subject to occasional and quite severe attacks of urticaria, which tendency lasted for about a year. The wheals would appear chiefly at the wrists when exposed to cold, also about the face, and frequently, coming to breakfast feeling perfectly well, the lips would suddenly swell with an erythema and remain so for half an hour. She had nursed the child but insufficiently for three or four weeks, and the milk then ceased.

When first seen by me, June 2d, 1873, she was for the second time pregnant, five months; in fair general health, pulse of moderate strength, 70, appetite good except in the morning. She had retroflexion of the uterus.

About two weeks previously she began to notice an irritation of the skin of the hands and feet, which caused her to scratch the parts, when there would shortly appear little groups of vesico-papules, which were observed principally about the ulnar aspect of the hand and also running up on the arms; on the feet

likewise similar elements were seen along the inner side and around the ends of the toes. In the former attack the disease seemed to develop mostly upon the inner surfaces. There is no family history of importance, neuroses being unknown; there is a little rheumatism.

The eruption was regarded from the first as an herpes, dependent upon reflex uterine irritation; and the history of the former attack, together with the futility of the treatment then employed, led patient and friends to anticipate prolonged suffering, relieved only after some months when the uterus should be emptied of its contents. She is ordered to avoid rubbing or irritating the parts where the eruption had already developed, or where it was about to appear, and, in place of scratching, bathe the parts whenever they itched with a wash composed of a teaspoonful of the "*Liquor picis alkalinus*" (℞ Picis liquidæ ʒ ij., Potas. causticæ ʒ i., Aquæ ʒ v. M.) in a teacup of water. Also directed to eat largely of oatmeal before retiring every night and ℞ Ferri et strychniæ cit. ʒ i.; quiniæ sulph. ʒ ss. M. Div. in pil. No. xxx, take one after meals three times daily.

June 13.—There has been some relief, but for the past few days the disease has been gaining, more vesicles are developing, mostly in groups about the thumb and little finger and on the back of the hands; the palms are also sprinkled with partly formed vesicles whose fluid is just perceptible beneath the thick epidermis; the feet are very similarly affected, the limbs of the left side being worse than the others. Ordered to stop the pills of iron, strychnine and quinine, and take ℞ Potass.

acetat. ʒ iv.; spts. etheris nitrosi, ʒ i.; ext. tarax. fl., ext. rumicis rad. fl. āā ʒ iss. M. Teaspoonful between meals in ⅓ glass water; and ℞ Chloral hydrat. gr. x. at night if necessary to insure not scratching. Puncture the vesicles very carefully by inserting a needle laterally at their base. She is up, and still attends to household duties.

June 16.—Patient has been more comfortable, the urine has been very free; there has been no new formation of vesicles until this afternoon, when she has been working in a very hot garret, directly beneath a tin roof, and is much prostrated therefrom. The burning and itching in the feet and hands is now unbearable, and the disease is developing with great rapidity, there being large crops of vesicles over the soles of the feet and on the palms, also around the nails and at the end of the toes. Pulse 64. Ordered to double the strength of the tar-wash, using ʒ ij. of the *Liq. picis alk.* to ℥ iv. of water, and apply thereafter, when dry, mutton-tallow to one hand, on trial. Increase the diuretic mixture to one and a half teaspoonful four times a day. Remain recumbent and use chloral if necessary.

June 17.—Is feeling much better; there is less swelling of the hands and feet, and many of the papules and vesicles have vanished. The stronger tar-wash was very grateful, and she passed a quiet night without chloral. The case was seen to-day by my friend Dr. Wm. H. Draper, in consultation, who agreed as to the neurotic character of the disease, and suggested in addition to the present treatment the administration of

two drachms of cod-liver oil, together with three drops of Fowler's solution, three times a day. The contents of the vesicles were found to be alkaline; there was no elevation of temperature.

June 19.—Much more comfortable; there is less itching and less development of vesicles. Patient still keeps the bed, and is ordered to continue the local treatment and return to the pills, taking also the oil and arsenic, stopping the acetate of potash mixture.

June 30.—Patient is feeling very well; very little irritation or burning in the skin; the affection appears checked, as but occasional isolated vesicles appear, and the old ones are rapidly drying, C. T.

July 7.—Patient was up and around at about one month from the time of entering on treatment, and there is now hardly any trace of the eruption; no scars are left. She leaves in a day or two for the country. The vesicles and bullæ at no time have reached the size and extent of distribution attained during the first pregnancy, although the rigor of the onset and the early appearance of the eruption threatened a more severe attack. None of the bullæ have been more than ⅓ of an inch in diameter, and but few of the elements could merit any other name than vesicles, while quite a proportion aborted as papules. During the former eruption almost the whole of the body, except the head, was involved, whereas in the present, the cutaneous manifestations have been confined chiefly to the hands and feet, with some development as far as the elbows and knees, and a very slight sprinkling on the trunk.

September 16.—Has been perfectly well since last

note, spending much time out of doors in the country. There has been no return of the eruption, save occasional scattered vesicles, giving no annoyance. Still continues treatment.

October 21.—Was delivered five days since of a healthy boy; mother and child did well. (The first child is living and has never had any cutaneous trouble.) The internal treatment was continued until confinement. Two days ago, *i.e.*, three days after delivery, there occurred some burning of feet and hands, and there are now groups of vesicles, very minute, about the soles of the feet and dorsal aspect of the ends of the toes; the feet are a little swollen, but the whole matter gives little or no annoyance, and is insignificant compared to the attack which followed shortly after the first confinement. She returned at once to the pills and the wash, and the papulo-vesicles are rapidly subsiding.

November 17.—Child one month old, healthy, nurses but in part. Mother doing well. No sign of the eruption. Takes porter every day.

December 1.—Slight development of urticaria, as after the previous attack, about the wrists on exposure to cold air. She is very strong and well, and is taking Tinct. ferri chloridi gtt. x., and Tinct. nux. vom. gtt. iij. after meals.

January 6, 1874.—Patient is looking remarkably well; no cutaneous trouble of any kind. She still continues the use of the iron and nux vomica, and partakes yet of nourishment at night, as before, beef-tea, milk, etc.

After very considerable search, I find mention of but eight other cases at all similar, and these correspond so exactly with the one detailed above that I give them all in brief, in order to establish the identity of the affection and to distinguish it from other eruptions resembling it to a greater or less degree. The cases are recorded by Gibert, Chausit, Hardy, Wilson, Milton, Klein, and Hebra, in the years 1840, 1852, 1863, 1867, 1868, and 1872 respectively.

Gibert's * mention is very brief, and is as follows: "A German physician, quoted by Dr. Jos. Frank, has seen a patient who, during every pregnancy after her first confinement, was attacked with pemphigus, during the last months of gestation."

Chausit† does not notice any connection between the disease and pregnancy, but the case answers in many respects to ours: he calls it *pemphigus pruriginosus*, it is as follows:

J—— Anna, aged 23, was delivered of her first child, a boy, six weeks before full term. She was of robust constitution, and of good health, but at the fifth month of gestation, from no known cause, she began to be tormented with intense itching and an eruption on the body and limbs of numerous minute solid papules; the itching increased in severity as pregnancy advanced. On the fifth day after *accouchement*, she experienced greater itching and general burning. The fever rose, and some delirium ensued. In the morning the whole body was covered with a very confluent eruption of large salient

* Traité pratique des maladies spéciales de la peau, Paris, 1840, p. 102.

† Annales des maladies de la peau et de la syphilis, March, 1852, p. 142.

red papules, resembling in some respects those of erythema papulatum. The eruption preserved the same appearance for two days, and on the third there were seen on the arms some scattered transparent bullæ, varying in size from that of a haricot-bean to a hazel-nut. The number of these bullæ increased from day to day, until now, on the eleventh day, the whole body, including the face, is covered, and the burning and itching have completely ceased. From ten to twenty new bullæ form daily without pain or burning, and, if large, soon rupture, or if small subside by the absorption of their contents. The original papules have disappeared and the bullæ forming daily are not preceded by them. The bullæ ceased to appear on the seventeenth day, and a few days later all traces of the eruption had vanished, except brownish staining where the bullæ existed. A month later, *i.e.*, six weeks, about, after confinement, there was a slight general itching over the body, followed by a few groups of papules, on different parts of the body, which soon faded, no bullæ being formed.

Hardy* describes a similar eruption of blebs attended with great itching in a pregnant woman, also under the name *pemphigus pruriginosus*. The patient was 35 years of age, had already had nine children, and was now far advanced in her tenth gestation. Since her second child, she had suffered from a similar eruption with each pregnancy, it commencing some weeks after conception, the one described being the eighth. The

* Leçon sur les maladies de la peau, 2d part, p. 136. 2d ed., Paris, 1863.

whole body itched excessively, so that sleep was almost impossible. The bullæ were small, not exceeding the size of a hazel-nut, and the skin became darker and the seat of a viscid secretion. These phenomena in each instance continued in increasing severity until delivery, when they gradually disappeared, to return at each conception with greater intensity. After delivery there were several slight outbreaks of the disease, but she was entirely well one month after the birth of the child. In the interval she was perfectly well, and the children were healthy.

Wilson,* under the title *herpes circinnatus bullosus*, mentions two cases of a bullous eruption, "associated with pregnancy, beginning with conception and ending with the completion of parturition." I quote his short account: "Both cases were remarkable for perpetual irritation and intense pruritic suffering. The bullæ were of the flat and foliaceous kind, some filled with limpid serum, and others with a muco-purulent fluid, and were associated with moist excoriations, thin crusts, papulæ, and pruritus. In one patient the cutaneous disease was the first intimation of pregnancy; the disease continued during the whole period, accompanied four or five pregnancies in succession, and completely exhausted her health and strength. In other respects and in the intervals she was a strong and handsome woman. The other patient came before us at the age of 36; she had nine children; the eruption made its appearance with the fourth pregnancy, and has accompanied every pregnancy since. When parturition was

* On Diseases of the Skin, London, 1867, p. 294.

over the eruption ceased; but on the last occasion, nine months ago, it remained, and has now assumed a permanent character. She thinks, moreover, that at the present time she may be in the family-way again. In both cases the eruption was accompanied with sympathetic gastric disturbance, and with a duskiness and cachexia of the skin."

J. L. Milton * recorded, shortly after, a parallel case, giving Wilson's designation, *herpes circinnatus bullosus*, which was afterwards, in transcribing the case to his book, † changed to *herpes gestationis*, which name we have adopted. Milton's case was in brief as follows:

A healthy-looking woman, aged 45, in the fourth month of her eighth pregnancy, began to be distressed by a most intense itching, smarting, and heat of the skin of the arms and forearms, upon which parts a vesicular and bullous eruption soon developed. When first seen, nearly the whole surface of the inner part of the right arm and forearm, and a somewhat less but still very considerable extent of the left arm and forearm, were covered with vivid red, very slightly elevated patches, varying in size from that of a bean to that of the base of a split walnut. On most of these patches were vesicles about the size of a small pea, very rarely solitary, and generally in groups of two to four. They were mostly prominent and pointed in shape, but some were oblong, with the ends apparently communicating. They were in all stages, some quite tense from accumu-

* Journ. of Cutan. Medicine, Vol. I., No. 3, p. 311.

† The Pathology and Treatment of Diseases of the Skin, London, 1873, p. 205.

lation of limpid serum; others just rising. She noticed none of the vesicles before the previous day, though the patches had formed a day or two prior to this. Her face had a peculiarly distressed look, and she complained of utter sleeplessness, occasioned by the intense itching, smarting, and heat.

A week later the complaint had gained ground greatly; there were now at least fifty patches on the right arm, all bearing vesicles varying in size from a pea to a haricot-bean, some also coming on the outside of the arm. The disease continued to increase, so that a few days later the front part and sides of the abdomen and the inside of the thighs were almost covered with the same red patches, and in two or three days more almost the whole surface of the body, except the back, face, and hairy scalp, was involved. The irritation was most distressing and sleep impossible, pulse 120. She was given a supporting diet and stimulants, and had the entire surface enveloped in wrappings of mutton-suet.

By April 8th, twenty-four days after first seen, vesication had pretty well ceased, the irritation of the skin was greatly lessened, and she could obtain some refreshing sleep. The improvement was of short duration; many of the symptoms returned and persisted until premature labor took place—nearly three months in all—when she was delivered of a fœtus between six and seven months old, which was stated by the medical gentlemen who attended her to have been dead some time. Directly after her confinement, the eruption began to relapse, and by the third day she had a toler-

able crop of large vesicles on each arm, while many of the spots on the legs and trunk became speedily covered with dry, yellow crusts. These soon abated again, and two weeks later she was almost entirely free from them and had no relapse.

This woman had had similar attacks twice previously, with her first and fifth pregnancies; all three attacks began at about the same period, ran the same course, and disappeared spontaneously after parturition, without having been influenced much by treatment. The second attack was more severe than the first, and the third worse than the second. The disease occurred first in 1853, when she was thirty-one years of age—the child lived; the second eruption at her fifth gestation was attended with a still-born child, as well as the one above detailed. There were intervals of seven years between each of the eruptions, and two living children born between each, without the mother having any eruption with them.

"From the very outset," says he, "I had expressed a decided opinion as to the inefficacy of any treatment whatever, and certainly I never observed that the medicines prescribed exerted the least real control over the progress of the complaint."

The next similar case which I find is given by Dr. Klein,* of Jicin. The patient, 32 years of age, in the beginning of the 7th month of pregnancy, noticed on the upper extremities and the thorax a number of vesicles the size of millet-seeds, the contents of which were

* Allgemein. Med. Zeitung, Vienna, Aug. 6, 1867; quoted in Jour. Cutan. Med., July, 1868, p. 203.

transparent. She took a few baths, but grew worse under their influence, and the vesicles formed with such rapidity and in such increased numbers, that almost every part of the body was very soon covered with them, and they also so increased in magnitude that by this time they varied in size from that of a walnut to that of a hen's egg, and the contents, clear at first, soon became turbid. At the same time, she suffered very severely from pains, and her strength declined visibly. A supporting treatment was given, with iron, quinine, wine and beer, the affected surfaces dusted with lycopodium, starch, and morphine, and the obstinate constipation relieved by clysters.

This state lasted two months, until confinement, when she at once began to mend rapidly; the vesicles, which still appeared, grew fewer and fewer in number, while the skin on the parts which had been invaded became healthy and the bed-sores closed up. In fourteen days she could leave her bed, and within a few weeks had entirely recovered. The child, which was healthy, was cared for by another person. The patient had previously borne two strong, healthy children, and had enjoyed good health during her pregnancies.

Hebra* gives an account of another case of the same nature, which he calls pemphigus. He says:

Several years ago, a young woman came to Vienna from Russia, having suffered from pemphigus during three successive pregnancies. On the first occasion, it appeared during the fifth month, and disappeared after delivery, and on the second, it continued one month

* Wiener Medicin. Wochenschrift, No. 48, 1872.

after delivery. On the third, it did not thus disappear, but passed into a state of chronic pemphigus, and this it was that brought her to Vienna. Under the use of the baths of Vöslau and other means, she completely recovered. During the first month of the next pregnancy, some bullæ appeared on the lower extremities, and afterwards, as in the former pregnancies, extended to the arms. Loss of appetite and sleep reduced her to much the same condition she was in when she first came to Vienna. After delivery she soon lost her pemphigus. On two subsequent occasions she became pregnant, the pemphigus reappearing in both and lasting for some time after delivery.

The peculiar features of this remarkable disease, as gathered from the preceding clinical histories of nine almost precisely similar cases, recorded by eight observers during a period of twenty years, may be thus summed up:

1. There is an affection of the skin directly dependent upon the gravid state of the uterus, which may make its appearance at any period of gestation up to the seventh month, and generally continues until the organ is emptied of its contents, and has in a measure resumed its former state; this eruption is very apt, moreover, to recur at each successive conception. (See Table of Cases.)

2. The cutaneous manifestations are chiefly an intense irritation, consisting of burning, itching, or stinging, and sometimes pains, with the development of erythema, papules, vesicles, and bullæ up to the size of a hen's

egg, the majority of the blebs, however, seldom surpassing in size a large bulla of herpes. These vesicles are commonly in groups, but do not follow any definite nerve-tracks, appearing first generally on the extremities and afterwards involving the larger part of the body. Exhaustion may ensue from the cutaneous irritation, but the disease is non-febrile.

3. The eruptive disease does not terminate at once after delivery, but slowly retrogrades, by the development of fewer and fewer vesicles at increased intervals, until the disposition thereto ceases entirely. An outburst of greater or less severity is most likely to happen on the third day; it is rare for any manifestations of the disease to remain a month after parturition.

4. This affection is sometimes accompanied or followed by other neurotic manifestations, as erythema, urticaria, and neuralgia, which may continue in the interval of conception, while in many instances the patient experiences perfect health in the *interim*.

5. This eruption has occasionally been the first indication that impregnation has taken place.

6. The majority of the cases have been uninfluenced by treatment, relief occurring only on the emptying of the uterus.

7. The children are not, as a rule, affected by the eruption in the mother, although in one case it was accompanied in two instances by a still-birth; here, however, the first eruption was followed by the delivery of a living child, whereas the second conception gave a still-born child without any maternal eruption.

HERPES GESTATIONIS.

No. of Pregnancy.	GIBERT, 1840. Pemphigus.	CHAUSIT, 1852. Pemphigus pruriginosus.	HARDY, 1863. Pemph. prurig. Aged 35.	WILSON, 1867. Herpes circinnatus bullosus.	Aged 36.	MILTON, 1867. Herp. circin. bull. Aged 45.	KLEIN, 1868. Pemphigus.	HEBRA, 1872. Pemphigus.	BULKLEY, 1873. Herpes gestationis. Aged 32½.
I.		Appeared in fifth month of gestation, and lasted to delivery.				Boy child, 1853. 1st eruption.	Two strong healthy children.	Appeared in 5th mo. Girl child, lived.	Appeared in 7th mo., lasted to end. Relapse two or three days after delivery.
II.	Appeared during last months of gestation.					Stillborn child, 1854. No eruption.		Appeared in 3d month and continued one month after delivery.	Appeared in 5th month. Disappeared under treatment, slight relapse on 3d day.
III.	ditto.		Appeared few weeks after conception, and lasted to delivery.			Boy child, 1855. No eruption.	Appeared at beginning of 7th mo., lasted to end.	Stillborn boy. Passed into state of chronic pemphigus.	
IV.	Recurred with each pregnancy, number of times not stated.		ditto.	Accompanied four or five pregnancies in succession, and continued during the whole period.	Appeared in fourth pregnancy, lasted to end.	Boy child, 1858. No eruption.		Appeared during first month. Healthy boy.	

V.			ditto.		ditto.	Stillborn child, 1860. 2d eruption.		Lasted some time after delivery.	
VI.			ditto.		ditto.	Girl child, 1861. No eruption.		Lasted some time after delivery.	
VII.			ditto.		ditto.	Girl child, 1863. No eruption.			
VIII.			ditto.		ditto.	Stillborn child, 1867. 3d eruption. Commenced in fourth mo. Miscarriage 6th—7th mo.			
IX.			ditto.		ditto. Remained after this confinement for nine mos.				
X.			ditto.						

The questions now arise, what is the nature of this disease, its nosological relations, and what its appropriate treatment? I can find but very little in the gynæcological works at my command, or in the periodical literature with reference to the relations of the skin and the uterus, other than brief mention of the pruritus and chloasma attending the pregnant state, and also certain disorders of the female organs. That a very intimate connection exists between the skin and the genitals is evident from many circumstances.

Thus, all recognize the changes which take place in the cutaneous envelope as puberty approaches, the growth of the pubic and axillary hairs in both sexes, the changes of color and expression, with the more abundant development of adipose tissue in females, and the appearance of the beard in man. We are equally aware of an arrest of sexual development or of an improper performance of the functions connected therewith, by the chlorotic pallor or darkened skin beneath the eyes, and the clammy hands and acne-sprinkled faces of those misusing these functions. Not less striking are the phenomena observed in the lower animal kingdom, the development of the antlers in the stag, the increase in brilliancy of plumage of birds, and changes in the fur of animals during seasons of sexual excitement.*

Pathologically, we observe acne punctata and simplex appearing in a large share of the cases early in life, at about the time of the first appearance of the menses in girls, and puberty in boys, and again in the decline of

* Dr. J. M. Hyde, Chicago Med. Jour., March, 1873.

the sexual function we often meet with acne rosacea at about the time of the menopause. Many cutaneous diseases are worse at the season of the monthly period.

From the above analogies it might be expected that the grave and important changes in the uterus during pregnancy would be reflected upon the skin, and this we find to be the fact. Physiologically we find the skin around the nipples darkening and the sebaceous glands developing, also on the abdomen* "a brownish line is observed on the skin, extending from the pubis to the umbilicus, where it mostly stops, though it sometimes extends beyond it in dark brunettes."† Accordingly one of the most common of the abnormal appearances on the skin during pregnancy is chloasma, namely, a brown discoloration of the skin resembling this physiological pigmentation, occurring chiefly on the face, and there most commonly on the forehead. Naturally this will not disappear very soon after delivery, but gradually fades and is then quite easily removed, to recur, however, in successive gestations. Of this I have seen repeated instances. It must be remembered that by chloasma is to be understood a true chromatogenous disease, and one clearly to be distinguished from the pityriasis- or more properly tinea-versicolor, a parasitic affection found on the trunk, seldom on the head. True *chloasma gravidarum*, or *uterinum*, as it has been called, differs from the *tinea* in being not at all scaly, except when irritated, nor can scales be scraped off, as the pigmentation is seated in the rete Malpighii, it is

* Graily Hewitt, Dis. of Women, Phila., 1868, p. 297.

† Cazeaux, Phila., 1866, p. 141.

not at all elevated above the surface, and the margins fade sometimes insensibly into the surrounding skin. Dr. H. G. Hand * reports a case of very deep bronzing of the skin of the whole body to the color of dark coffee, which commenced three and a half months before delivery at full term, and gradually faded thereafter. Montgomery † tells of a lady who in her first pregnancy observed brownish spots or patches on the sides of the forehead and temples, which she at first mistook for soils on the skin, but they remained permanent; and when she became pregnant again a further addition was made to them, so that after several pregnancies the dark marks extended so far down each side of the face, that the lady was obliged to dress her hair in such a way as to cover them. The most remarkable circumstance in this case was the permanence of the marks, which almost always disappear after delivery. Lacet relates the case of a woman whose face, in three successive pregnancies, became quite black.

Prominent among the effects of pregnancy on the economy are those referable more or less directly to the nervous system, as facial neuralgia, cephalalgia, chorea, palpitation of the heart, mania, etc.,‡ together with anomalous affections of the organs of sense, especially of sight and hearing, altered sensibility of various parts, occasional spasms, slight attacks of singultus,§ and pruritus of the integument. The last affection, which principally interests us, is either local and con-

* North-Western Med. and Surg. Jour., Jan., 1873.

† Signs and Symptoms of Pregnancy, Phila., 1839, p. 103.

‡ Tyler Smith, Lancet, March 1, 1856.

§ Copland's Dict. of Pract. Medicine. Vol. III., p. 504.

fined to the region of the genitals, or it may be general, so that the whole body is distressed. Of the local variety we shall say but little, as it is well recognized and described with its appropriate treatment in most of the works on obstetrics and diseases of women. It very frequently depends on local causes entirely disconnected with pregnancy, as ascarides, pediculi, vulvar folliculitis, an acrid condition of the sebaceous secretions, vascular tumors of the urethra, etc.,* although Meigs† states that he judges that ninety per cent. of the instances he had met with were in women *enceinte.* General pruritus is less common, but is more or less a distinct disease dependent on the gravid state of the uterus, inasmuch as it disappears completely at once upon parturition. Cazeaux relates a case published by Maslieurat-Lagemart, of "a lady, who in eight successive pregnancies was afflicted with itchings so violent as to produce premature labors. On four occasions they began in the sixth month, twice at eight months and a half, and twice in the seventh month. They appeared almost instantly over the entire cutaneous surface; the legs, thighs, genital parts, the whole trunk, the neck, face, scalp, were all affected; nothing escaped but the palms of the hands, and even they were invaded at a later period. So severe was the irritation that the violent rubbings of the poor sufferer excoriated the skin. Hardly was she delivered when they vanished entirely." He himself had seen three cases of general itching which yielded quite promptly to alkaline bath (℞ Potass. car-

* Graily Hewitt, Dis. of Women, Phil., 1868, p. 665.

† Woman and her Diseases. 3d Edit. Phil., 1854, p. 93.

bonat. ʒ v. to the bath). Hebra* records the case of a lady who during the first five months of five successive pregnancies suffered from so violent a pruritus cutaneus that her rest at night had been disturbed, her mind kept in constant irritation, and her nutrition impaired, while her skin presented a scratched appearance usually seen on those suffering from epizoa. I have very recently had under my care a distressing case of pruritus connected with pregnancy, where the shoulders, arms, thighs, and lower part of the trunk were the seat of such intense itching that rest seemed impossible; upon the subsidence of this under treatment, persistent hoarseness ensued, not due to cold, which gives no annoyance save the inability of speaking above a whisper. The loss of voice is evidently nervous, it having occurred with the preceding pregnancy, when it lasted to delivery and disappeared spontaneously thereafter, which result she expects to happen again with the expiration of gestation yet a month or two distant.

Such then being the nervous phenomena, with many others, excited in certain instances by the impregnated uterus (and here let me say that the pigmentary anomalies described above may also be referred to perverted innervation, as appears to be certainly the case in leucoderma or vitiligo), let us see how a farther nerve-irritation may result in true cutaneous lesions as in the cases of herpes which form the basis of our article.

The nerve origin of many diseases of the skin has now

* Wiener Med. Wohcenschrift, No. 48, 1872.

passed beyond the region of conjecture, and although it would be out of place here to study the mode of production of the lesions, we may mention some of the results observed and their relation to each other. Dr. Woaks * has collected numerous instances where injury or shock was associated with neuralgic symptoms and alterations, to varying degrees, in the skin supplied by the nerves implicated. Erythema, eczema, herpes, and ulceration were observed thus connected, and herpes zoster being especially studied with reference to shock from the impression of cold, the conclusion was arrived at "that, owing to the suspension of the regulating power exercised mainly by the sympathetic nerves over a given artery, effusion of fluid takes place from its ultimate ramifications. These being distributed to the skin on the one hand, and to the texture of the sensory nerves on the other, the effusion so caused produces the herpetic rash in the former and pain from mechanical pressure in the latter." Handfield Jones † recognizes vaso-motor nerve-paresis as a cause of many affections of the skin and instances of zona, pemphigus, hyperidrosis, urticaria, and hyperæmia connected with and evidently dependent on weakened and relaxed nerve-power. This neuro-pathology of some skin diseases is recognized also by very many, in text-books and elsewhere. Now the human system can hardly undergo any greater strain upon its powers, and those of its nerve elements especially, than is afforded by pregnancy, which latter is evidenced by the manifestations

* Journal of Cutaneous Medicine, Vol. I., No. 3.

† Ibid., Vol. II., No. 6.

of nervous disorders we have alluded to, and which might be inferred from the fact that the nerves of the uterus are enlarged during pregnancy,* as if to meet this requirement. Consequently we are not surprised to find cutaneous disorders especially attributable to nerve-paresis occurring repeatedly during that state. As before stated, the simplest and most common derangement observed is simple pruritus, or irritation of the sensory nerves of the skin. When, now, there is still greater nerve irritation, paresis of the vaso-motor nerves ensues, causing hyperæmia, and fluid is poured out in varying quantity, giving rise to urticaria, eczema, herpes, and pemphigus, according to its extent and individual idiosyncrasy, the first being the least expressed form, and the last the greatest, of confined and limited exudation.

These forms of skin-disease are occasionally met with during and dependent on the pregnant state, although the recorded cases are few. Hebra mentions having seen them thus connected, and McCall Anderson,† quoting Hebra, says of eczema: "Its occurrence is not unfrequently favored by pregnancy, in which case the hands, the feet, and the neighborhood of the genital organs are the parts most frequently affected. So uniformly does this occur on the hands of some females when they become pregnant, that they can tell more certainly that they are with child by the appearance of the eczematous eruptions than by the cessation of the menstrual discharge." I find, on inquiring also among

* Stricker, Manual of Histology, p. 616.

† A Practical Treatise upon Eczema, London, 1867, p. 42.

some of the obstetric practitioners in this city, that the observance of eczema accompanying each pregnancy is not at all uncommon.

Other eruptions besides those mentioned above, and which have not been demonstrated to depend on nerve influence, are frequently seen attending each pregnancy; thus, I have at present a patient under my charge in whom an acne rosacea has developed about the mouth and chin with each pregnancy, also one who has had psoriasis since early childhood, in whom the disease is always worse during gestation. McCall Anderson* gives a case of a woman in whom psoriasis appeared while nursing each of three male children, it being absent in the interval and while nursing two female children; it appeared about the sixth month of suckling, and vanished soon after weaning. Three cases of psoriasis during lactation are also recorded by Dr. M. H. Henry.† These are all evidently due to the debility caused by lactation, and cannot be included in our argument, but are inserted here for completeness.

To return to the affection with which we commenced, *herpes gestationis.* The analogies and illustrations above cited, together with the clinical histories of the nine cases, in seven of which we have the history of recurrence with each gestation and disappearance on parturition, as a rule, are to us sufficient proof that the eruption is essentially connected with and dependent on the gravid state of the uterus, and is, moreover, a neurosis.

* Psoriasis and Lepra, London, 1865, p. 14.

† Am. Jour. Syph. and Derm., Jan., 1871, p. 49.

In order to establish more clearly the individuality of the affection we are studying, we must briefly notice several eruptions which have been described, which resemble this in a measure, but differ essentially in many points. And, first, a peculiar one affecting pregnant and parturient women, of which Hebra* had seen only five instances, but one of the five cases surviving. The eruption, which he terms *impetigo herpetiformis*, was characterized by pustules, filled with pus at their first appearance, which affected a peculiar mode of grouping and peripheric extension. In almost every case the efflorescences appeared first on the inner surface of the thighs, partly in small groups, partly isolated. Successive crops immediately followed, extending towards the periphery in a circular or iris form, so that in a few days the whole body was involved. While the pustules in the centre of each group became covered with flat, dark-brown crusts, new ones filled with pus were being constantly produced at the circumference, resembling *herpes iris circinnatus*. The affection throughout its whole course was attended with intense fever, dry tongue, and great prostration. In three of these cases this reproduction of pustules continued with more or less rapidity until the patient died; while in the other two, after several weeks' duration, they dried up, the thick scabs finally falling off and leaving the skin beneath healthy, but strongly pigmented. Some of the pustules, instead of drying, especially at the bends of the joints, were converted into a grayish, stinking mass, which, resting on a red and moistened

* Wiener Med. Wochenschrift, No. 48, 1872.

base, assumed an eczematous appearance. Each outbreak of pustules was preceded by a chill, with a febrile reaction lasting some days. Of the five women, three had been confined from two to five weeks before admission to the hospital, and two came in during the last month of pregnancy. The eruption appeared the same after delivery as before. The necropsies of the four that died showed no certain cause of death; there were no evidences of syphilis.

In the absence of all other etiological data, and from the fact that all the cases occurred only in pregnant and parturient women, and taking into consideration other diseases of the skin which appear under the same conditions, Hebra concluded that the eruptions in these instances were dependent upon a diseased change in the genital apparatus.

It is evident that our case and the similar ones we have detailed are not the same as those of Hebra, although both have certain features in common, as being diffused inflammatory eruptions accompanying the pregnant state; but in the latter the eruption was from first to last pustular, it commenced on the thighs and trunk, whereas ours, always vesicular, began peripherally; Hebra's involved even the neck, face, and hairy scalp, which were free in our cases. In Hebra's cases no change occurred in the eruption on the emptying of the uterus, whereas the relief thus obtained was great and almost immediate in every instance with us. Finally, but one in the five of Hebra's cases recovered, while the affection we have described did not affect life or health in the interval.

Nor do our cases correspond to those detailed by Henry Contagne * in his monograph on *Acute general febrile herpes*. His cases were all in males, aged respectively 17, 18, 20, and 39 years; the course of the disease was short, lasting from eleven to twenty-one days; and in but one instance was there a recurrence of the eruption, and that only once.

Neumann† describes, under *herpes*, a disease somewhat resembling ours but still very different; he had observed but five cases of it, four males and one female. It began with small papules, which after a few days increased peripherally, the apex soon becoming vesicular. These were seated upon infiltrated patches on whose margin new papulo-vesicles continually formed, while the centre dried up, occasionally with a vesicle produced in it.

By this means in two cases almost the whole body was covered with gyrate forms produced by the confluence of the margins of these vesicle-bearing patches. On the palms and soles the vesicles bore the greatest resemblance to eczema; on some parts of the body the crusts formed were very thick and adherent. The disease lasted many months, and in one instance two years; it was attended with severe itching. An almost precisely similar case is described by Ad. Lafaurie,‡ and an excellent plate of the same is given. It occurred in a girl twenty-four years old, lasted many months, and

* De l'Herpes Généralisé Fébrile, Paris, 1871.

† Lehrbuch der Hautkrankheiten, 3d edition, 1873, p. 188.

‡ Ueber die Unzulänglichkeit der bishderigen Pemphigus-diagnose, Würzburg. 1856, p. 58.

was accompanied with intense burning and itching; he called it *herpes pemphigodes.* But our eruption presents many features widely different from this affection.

Acute febrile pemphigus has been described by some* and denied by others,† in adult life, but the symptoms as depicted appear to us to belong rather to herpes than the disease generally known as pemphigus.

That the affection we have described is not simply an eczema appearing in pregnant women, is certain from the histories given; there were no moist, scaling, or cracking surfaces, but simply the development of papulæ, vesicles, and bullæ, as described, which disappeared in part without exfoliation, and when pricked the vesicles subsided rapidly. No trace of the eruption remained on the parts affected, save a slight staining.

As seen from the histories, this eruption has been called pemphigus in most of the cases I have quoted, Wilson and Milton alone designating it herpes. When I first saw the case I gave the name herpes to the cutaneous manifestations present, and have been strengthened in the propriety of the diagnosis since my studies on the subject. At no period during the attack which I witnessed were there bullæ more than half an inch in diameter, and that very rarely, whereas by far the larger part of the eruption consisted of papules and vesicles resembling eczema, but, as before stated, the

* Annales de Dermatologie et de Syphiligraphie, 4th year, No. 6, p. 401.

† Gintrac. Cours Théorique et Clinique de Pathologie interne, vol. 4, p. 712.

catarrhal element was wanting, and we were forced to the diagnosis of herpes. Then again, the efflorescences were in groups, mostly of circular form, which Neumann* asserts is "the only constant sign pathognomonic of herpes." The term herpes must, therefore, receive a wider signification than is accorded it in some text-books, and be made to include a vesicular eruption involving the whole body, and from its proven nervous origin cannot rightly be restricted to the herpes zoster, shingles or *zona*, as McCall Anderson† has recently attempted to do. We claim a species of general herpes but slightly if at all febrile, commencing on the hands and feet, attended with very considerable burning, itching, and stinging, which while acute is prolonged several months, it may be, by the fresh development of its elements, and which persists, as a rule, until the cause is removed, and that cause is the gravid state of the uterus. This eruption, moreover, has a very decided tendency to recur with each successive gestation. The name, *herpes gestationis*, we have adopted from Mr. Milton's work, as embodying the clinical characters of the eruption, and signifying at the same time the sex and state of body in which it appears.

Treatment.—In most of the instances of the eruption which we have collated, the disease progressed to the end of pregnancy without being influenced in the slightest degree by treatment. Our case proved an exception in being relieved almost completely at the expiration of one month's treatment, so that the last

* Loc. cit., p. 191.

† On the Treatment of Diseases of the Skin, London, 1872.

three months of gestation were passed in comfort; moreover, there was almost no relapse after confinement, only a very few scattered vesicles appearing, which gave no annoyance.

The indications for treatment seemed to be for soothing antipruritic local applications, and powerful tonics, especially those directed to the nervous system. The local remedy employed was the "*Liquor picis alkalinus*," which we have before presented to the profession.*

℞ Picis liquidæ..... ʒ ij.
Potass. causticæ..... ʒ i.
Aquæ font..... ʒ v.

M. Use diluted one teaspoonful to four ounces of water, followed by inunctions of mutton tallow. The strength of the diluted wash was doubled later, and may be used in far greater strength. This afforded very great relief, and, although other remedies were tried, was returned to as the best, indeed, answering all requirements. The recumbent posture taken after the disease had lasted two weeks undoubtedly assisted the cure and saved much suffering. The internal medication consisted of pills of iron, quinine, and strychnine from the beginning to the end, interrupted only on the occasion of one or two exacerbations, when a diuretic mixture, composed of acetate of potash, nitre, taraxacum, and rumex, caused immediate amelioration of feelings. Arsenic and cod-liver oil, added at a later

* Archives of Scientific and Practical Medicine (Brown-Séquard), February, 1873.

period on the suggestion of Dr. Draper, contributed their quota to the result.

We lay considerable stress upon a dietary element of treatment which was begun shortly after the appearance of the disease, and which was continued till long after confinement, namely, the taking of a considerable portion of oatmeal just before retiring every night; this was replaced by bread and milk, later. Of this plan of nourishment we can speak in the highest terms, using it very frequently whenever there is a low state of health and impairment of nutrition; the additional nutriment in a digestible form and at this time of day has with us given excellent results. Other cereals answer very well, as cracked wheat, etc., and a little wine or milk may be added. I find this very acceptable to patients, and that it rather increases the appetite for breakfast than otherwise.

None of the writers we have quoted mention any treatment for the disease in question, and our results were so thoroughly satisfactory that in case of a return of the affection, or in another case, we should follow the same general plan of treatment.

It is hoped that other observations will follow on this affection, by those who are largely occupied with obstetric practice.

CASE OF OVARIAN HERNIA.

By BENJ. McCLUER, M.D., DUBUQUE, IOWA.

(Read before the Iowa State Medical Society at Des Moines, January, 1874.)

MAY 13th, 1873, called to treat Mrs. L. A. Butler aged 38, for uterine disease. Found her complaining of pain through hips and pelvic region, with disturbed action of the heart, headache, nervous depression at time of menses, and, on examination, quite extensive ulceration and erosions of and around the os tincæ.

At my second visit, one week later, the patient called my attention to a "miserable thing" she had in her left groin. This was after she had risen to a standing position. Placing my hand upon the locality indicated, I felt a soft, oval tumor, about one by one and a half inches in diameter, occupying a position just below Poupart's ligament, in the left groin. Requesting her to assume a prone position, I examined by free handling and with the eye, but was uncertain as to its character.

I re-examined the tumor at my subsequent visits, and on June 1st, having learned the following history, that it was of about seven years' existence; that it came on suddenly, after rather severe exertion; that usually it was not tender to the touch, and gave no annoyance, but at the time of the menses there was a pulling sensation in the tumor, as if connected with some internal organ; that if she was upon her feet continuously for several hours it became sensitive, and when pressed upon,

as by leaning against a table, it caused a peculiar pain; and that it varied considerably in size, not unfrequently increasing and decreasing within a few minutes; and noticing that handling seemed to produce a change in size and hardness of the body, whatever it might be, I came to the conclusion that the tumor was a hernia of the left ovary, through the femoral opening, it coming out from below Poupart's ligament.

On the 20th of June, near the close of a "menstrual period," the patient was attacked with severe abdominal pain, with great tenderness extending over the entire abdominal region. After several hours the pain became concentrated in this tumor, which usually was about the size of a walnut, but now became swollen and extremely tender to the touch, and having diameters of about three by four inches, and apparently rolling up over the crural ligament. This condition existed for some days, but by the external use of iodine it gradually subsided, until it assumed its ordinary size and character. At the subsequent "periods" it was quite tender and somewhat enlarged, as above described. A distinct pedicle could now be felt when the tumor was grasped with the hand, and an attempt made as if to raise it out of its position by the fingers pressing under the tumor.

The opinion was given that it would probably continue to annoy the patient as long as her menstrual life continued; and as it could not be reduced, efforts having ineffectually been made to that end, and the patient being satisfied as to the correctness of the diagnosis, she requested its removal. Before doing so I requested

Dr. Asa Horr, of this city, to see the case, which he did, and fully agreeing in the diagnosis, and the propriety of its removal, I consented to the operation.

The operation was performed, chloroform having been administered, August 23d, 1873, assisted by Drs. Asa Horr and Charles Reed, by an incision nearly parallel with, and three-fourths inch below, Poupart's ligament, about two inches in length, cutting down upon the body of tumor. It was then gradually raised from its position by the handle of knife and the fingers; the pedicle, with contained blood-vessels, being ligatured, it was separated, and the wound closed. Patient did well, and in eight days went to the public table of the hotel for her meals. Her recovery was perfect, and without any accident or incident of note, except the remaining of the ligature an unusual time. It finally came away the last of October, as I am informed by letter, the patient now residing in Lower California.

The literature of ovarian hernia I find to be very unsatisfactory.

Of our American authors I consulted—

Thomas.—He speaks of its possibility, and refers to report of Deneux and Kiwich upon the subject, but gives no personal statement of observations.

Hadge, in Diseases Peculiar to Women, 2d edition, 1868, makes no reference to the subject.

Byford, Diseases of Woman, edition 1868, makes no mention of ovarian hernia.

Gross, System of Surgery, 5th edition, 1872, does not notice the subject.

Of English works consulted—

Holmes, System of Surgery, 2d edition, 1871, makes no reference.

Graily Hewett, in his Diagnosis, Pathology, and Treatment of Diseases of Women, 1st American edition, 1868, has a short paragraph upon the subject, mentions Potts's case of double inguinal hernia, and an interesting case by Dr. Meadows, in which he removed the ovary by an operation. In this case the ovary escaped from the pelvis in connection with an intestinal hernia.

West, in his Lectures on Diseases of Women, 1857, in a foot-note to page 354, refers to hernia of the ovary, but says, "No case has come under my observation."

Scanzoni, 4th American edition, edited by Dr. Gairdner, mentions the subject, while the editor refers to a case, under his observation, of inguinal ovarian hernia.

From the above it will be seen how poor was the literature upon this subject to which I had access.

The day after the operation I received THE AMERICAN JOURNAL OF OBSTETRICS, for August, 1873, which contained a lecture by Dr. Meadows, of London, on ovarian physiology and pathology, also an account of his case, and a description of his method of operation; and this was the first information from an actual observer that had come to my hand.

Since then the *Biennial Retrospect of Medicine and Surgery of the New Sydenham Society*, for 1872 and 1873, has come to hand, containing, under the title of "Hernia of the Ovary," a very interesting résumé upon the subject. It appears that "exclusive of the cases

in which the uterus has been found displaced along with the ovary, there are on record thirty-eight cases of ovarian hernia—twenty-seven inguinal, nine femoral, one sciatic, and one obturator.

"In one-third of the cases of inguinal ovarian hernia, the displacement was on both sides. In seventeen cases the hernia was congenital; in all these it was inguinal, and all the cases of double hernia were also inguinal. Those cases of ovarian hernia which came on at a later period of life must be accounted for by some such condition as excessive length of the ovarian ligament, bending forward of the uterus, too great an inclination forward of the pelvis, or the drawing down of the ovary with a hernial sac. Acquired ovarian hernia usually contains the ovary alone. . . . The displaced ovary was in fifteen cases normal; in seventeen, inflamed; in five it had undergone cystic, and in one cancerous, degeneration. Of the fifteen congenital hernia, thirteen were irreducible; while of fifteen cases of acquired hernia, in three only could the ovary not be returned into the abdomen. . . . Of the cases in which extirpation of a healthy irreducible ovary was performed, *one-half died* of subperitoneal inflammation and its results."

In the case above given it will be noticed—

1st. It was acquired.

2d. It was femoral—reducing it to a class of only nine of the thirty-eight.

3d. It was not connected with any other displaced organ.

And finally, the patient has recovered from the

operation, and is relieved of the frequent, if not constant, annoyance, caused by the abnormal position of the ovary.

I will only add that the tumor, after removal, was forwarded to Dr. B. F. Dawson, editor of THE AMERICAN JOURNAL OF OBSTETRICS, with a request that it be examined by a competent microscopist; and if determined on examination to be an ovary, to inform me of the fact; and from him I received the following, dated New York, Oct. 8th, 1873:

DR. BENJ. MCCLUER.

DEAR SIR: The specimen you sent me for examination proves to be an ovary. The case is an interesting one of hernia of the ovary.

I am, very truly, yours,

B. F. DAWSON.

DR. B. F. DAWSON, EDITOR "AM. JOUR. OBSTETRICS."

DEAR DR.: The specimen you sent me for examination has been thoroughly investigated by me. Its external appearance is that of a flattened ovoid body $1\frac{5}{8}$ inches long, 1 inch broad, and $\frac{1}{4}$ inch thick. At its lower border it shows an incised edge, this being evidently the spot at which it was divided from its attachments. The surface is smooth and shiny, and a small portion of adipose tissue adheres to its side in several spots. On cutting into the body for the purpose of procuring a transverse section for the microscope, I found that it contained a large cavity which took up the whole of the specimen, leaving the walls of this cavity barely $\frac{1}{8}$ inch in thickness. Under the microscope these walls were found to consist of a fibrous stroma, occasionally arranged in regular bundles, but usually interlaced apparently without distinct direction. In various spots, particularly near the margin, were to be seen

round cells, or follicles, of which a few contained a nucleus, the majority, however, only fine granular matter. The walls of these follicles were perfectly distinct, but I could detect no epithelium lining them. These follicles were sparsely scattered throughout the stroma, much less numerously than the Graafian follicles in the normal ovary, and, as a rule, somewhat larger than the latter before they begin developing. Here and there the transverse section of a blood-vessel could plainly be distinguished. A streak of fat-cells occasionally traversed the stroma, near the margin.

I am inclined without doubt to consider this specimen an *ovary degenerated by cystic disease*, the gradual development of which compressed the stroma and atrophied and obliterated the follicles, which, pressed from within, would account for the thinness of the walls of the cyst and the scattered and altered appearance of the Graafian follicle. Knowing nothing of the history of the case, this is, of course, an entirely impartial view of the matter.

Yours, respectfully,

PAUL F. MUNDE.

DUBUQUE, IOWA, *Sept.* 10, 1873.

B. MCCLUER, M.D., Dubuque City, Iowa.

DEAR SIR: Agreeable to your request, I give you here the history of the "tumor," which you have so successfully removed from my left groin. Permit me to state that I am thirty-eight years old; have been married nearly eighteen years; have borne no children, and have *never* been pregnant, owing, I presume, to the existence of a polypus at the mouth of the womb, which was removed about seven years ago by C. C. Green, M.D., of Virginia City, Nevada. I was at the time residing at Dayton, Nevada, and consulted him concerning the very labored and painful menstruation from which I was suffering at the time. He considered my difficulty caused

by some obstruction, and upon examination with speculum discovered and soon removed a polypus the size of a butter-bean.

Two days after this operation, while engaged changing the furniture in my room, I strained myself in a manner to cause a lump to appear in my left groin, about the size of a hickory-nut. This was not tender at all, but increased in size until, at the expiration of two months, it was as large as a small hen's egg, when it ceased growing.

As it caused me no inconvenience, I gave it very little attention, though I mentioned it to the doctor, who without examining it pronounced it a gland, and thought it would disappear if I would use an ointment of some kind; which I did without effect; and I gave it no more thought until I came to Iowa, two years ago, when it began to annoy me during the "menstrual period," and also at times when I had been standing or walking much.

At such times it became more prominent, was hard and sensitive, having a kind of pulling sensation in it, which inclined me to rub it by passing my hand over it, at the same time pressing gently upon it, till it would leave the surface on that side as smooth as the right side was; but in a few minutes it would rise slowly till it was as large and hard as before, with the same pulling sensation in it.

When I felt well, and did not exercise much, it gave me no annoyance.

Thus for nearly seven years it remained, and until the third week in June of this year. At about midnight I awoke with the most severe pains in, as I thought, the lower bowels. The pains continued till morning, when they had about subsided, leaving the parts *so* sore that I could not bear the weight of my hand upon my bowels anywhere. Upon trying to arise and dress, and bearing my weight upon my feet, I fainted with the pain the effort caused. In the afternoon, as the tenderness began to leave the abdomen, the tumor commenced swelling, until it was the size of a large goose-egg, and was so tender I

could only touch it lightly. You gave me iodine ointment to apply, which reduced the swelling, after many days, to its former size. All this time I was never free from pain, either in the tumor or in the pelvic cavity on that side. When I pressed upon the tumor the pain seemed to follow a cord, and centre in the (abdominal ?) cavity; and if I pressed just above the pelvic bones the pain seemed to follow the same cord back, and centre in the tumor. Observe! the pain was never felt upon the right side of the abdomen, but always in the left, and pressing to the right of the centre never sent the pain to the tumor. I noticed this always. (After referring to peculiar pains felt during the removal of the tumor, she says:) Since the wound is nearly healed, the pains that came and went for ten days after the operation have not been felt, and I am well, after nine weeks of suffering caused by that tumor. From the time of its swelling, in June, until its removal, it was subject to sudden and rapid changes in size, without apparent cause, and it never failed to remind me of its existence at each menstrual period. The pain it caused convinced me of its intimate connection, in some manner, with the parts within the pelvis, and as I have just passed through the first "period" since its removal, without suffering any pain, having felt as well as at any other time, I feel confirmed in my belief. I did not even feel the symptoms usually felt when menstruation approaches, and did not know that it had come on until discovering the evidences upon my clothing. This could not have happened before the removal of the tumor, because that pulling sensation always gave me warning of its approach.

Yours, respectfully,

Mrs. L. A. Butler.

CASE OF CYSTIC TUMOR OF THE UTERUS.

BY M. D. MANN, M.D., NEW YORK.

(Presented to the New York Obstetrical Society, Dec. 9th, 1873.)

GENTLEMEN: The following case, which came under my notice while acting as house-physician at the Strangers's Hospital, possesses so many points of interest that I feel quite justified in presenting it to your notice.

The patient, Ellen R——, æt. 28, married, was admitted into Dr. Thomas's wards Sept. 24th, 1871. She stated that she had been married two years, but had never been pregnant. Menstruation had always been regular. A year before, she had noticed some swelling in the lower part of the abdomen, inclining towards the left side. At first its increase had been very slow, but latterly it had developed very rapidly. Within a short time she had suffered greatly from dyspnœa, great pain in the back, and had been greatly distressed by the tension of the abdominal walls. Had also lost her appetite and become very much debilitated. On admission, patient weak but in good spirits. P. 105. Examination shows her to be very much emaciated, and her abdomen distended by a large tumor. The abdominal walls very tense and hard. The umbilical depression not effaced. Over the tumor absolute dullness on percussion, and distinct fluctuation. Not examined per vaginum at the hospital, having been seen

by Dr. T. previously at the clinic. Diagnosis, ovarian cyst, requiring immediate operation on account of the extreme suffering of the patient from the tension and dyspnœa.

Sept. 25.—Operation by Dr. T. G. Thomas. Incision four inches long. On introduction of a sound, very extensive adhesions were found to exist between the tumor and peritoneum. The sack was then emptied and firmly secured by a strong cord thrown around it. It was now found that the tumor was so firmly adherent to all the organs of the pelvis as to render its removal in the ordinary manner impossible. Enucleation was therefore resolved upon, and was successfully accomplished, partly by hand and partly by the use of the knife; a new clamp (Dr. Nott's) being used to crush the tissues before dividing them.

As soon as the enucleation commenced, it became evident that the cyst had developed from the body of the uterus, and not from the ovary, as supposed. Notwithstanding this, the enucleation was accomplished perfectly, and without injury to the pelvic organs or to the intestines, which were closely entangled in the adhesions; the copious capillary hemorrhage having been checked by the application of the actual cautery and the persulph. of iron. All the adhesions surrounding the cyst were taken up and included in a clamp.

The peritoneum was then cleansed with water, and a tent placed in the lower angle of the wound, after which the edges were brought together and secured by silver sutures. Firm pressure was made, with pads

and adhesive plaster, to prevent further bleeding. 5 P.M. Doing well. Pulse, 108. Ordered to be kept quiet, with morphine given by the mouth. Diet to be milk and beef-tea, which was kept up throughout the whole convalescence.

Examination of the cyst showed it to be monocular, and the walls were found, under the microscope, to contain a few bundles of unstriped muscle-fibres. The fluid was about one gallon in quantity, and of a dark chocolate color, depositing a thick sediment on standing. This sediment was found to consist largely of broken-down blood corpuscles. Many flakes and threads of fibrine were also floating in the fluid.

Sept. 26.—Doing well, morphine kept up. The tent was removed, and replaced by a No. 1 hard-rubber vaginal syringe, to allow of drainage, the tube being passed down as deeply as possible behind the uterus.

Sept. 27.—Patient doing very well, comfortable and quiet.

Sept. 28.—At noon the peritoneal cavity was washed out with a warm solution of hyposulphite of soda in water, by means of a Davidson's syringe. The temperature fell a trifle after it.

Sept. 29.—Smell from the slough very offensive; cavity washed out carefully with a warm solution of salt and water.

Oct. 1.—Temperature 100.5°. Syringed every day. Some discharge from the wound. Doing very well; prognosis good.

Oct. 3.—Sutures and clamp removed. Union firm. The hard-rubber tube still retained.

Oct. 4.—Temperature 100° this A.M. Patient tolerates morphine very well; takes from 1½ to 2 grs. daily with very little apparent effect. Abdominal cavity still washed out twice daily. For the last 24 hours only one pint of urine has been drawn off by the catheter. There has been a large and continuous flow of a nearly clear fluid from abdominal wound.

Oct. 5.—Flow from the abdomen increased and very profuse; has a slightly ammoniacal smell; contains some pus, as seen under the microscope. Morphine much reduced, only ½ gr. a day.

Oct. 6.—The fluid discharged from the wound I to-day examined chemically, and found it to contain a large amount of urea. A fistula supposed to exist, either from the ureter or bladder. General condition remains about the same.

Oct. 7.—To-day Dr. Thomas injected the bladder with a fluid colored with cochineal, part of which passed out through the wound, thus proving a fistulous opening to exist between the bladder and peritoneal cavity. Is supposed to be due to some sloughing. In order to allow of the fistulous tract filling up, the patient was treated as follows: The head of the bed was raised a foot from the floor, and the patient's back still more elevated by a large pad placed under it. Also a Sims's retentive catheter was introduced into the bladder, to allow of constant drainage and prevent a tendency of the urine to pass upwards. Patient to lie constantly on her back; morphine continued.

Oct. 8.—No discharge of urine through the fistula since the treatment was commenced. Considerable improve-

ment in general condition. Temperature, 9 A.M., 100°. axilla; small excoriations on the back from irritation of the urine.

Oct. 14.—No elevation of temperature to-day, for first time. General condition greatly improved. Wound in abdomen healing slowly; is still one inch in diameter at the surface, tapering to a point as it approaches the peritoneum; beyond that is traceable as a narrow fistulous tract extending downwards and backwards for several inches.

Oct. 29.—Patient has gained strength wonderfully, wound has closed, and she passes her water naturally. Discharged cured.

The points which seem worthy of notice in this case are—

1st. The difficulty of making a diagnosis, several gentlemen, masters of their art, having been entirely deceived as to its nature. In fact, it seems as if an absolute diagnosis would have been impossible, though the lately introduced method of rectal examination and a careful microscopic examination of the fluid contents of the sac would undoubtedly have helped.

2d. The great size reached by a simple uterine cyst.

3d. The contents of the cyst, showing from the evidences of blood that a large part of the rapid growth of the tumor had been due to hemorrhage into the cavity of cyst.

4th. The possibility of the enucleation of such a tumor, and the advantages of this plan over any attempt to cut or break the adhesions.

5th. The treatment by the use of the drainage-tube,

and the frequent washing out of the peritoneal cavity, and the impunity with which this may be done. This was the first case in which the tube was used.

6th. The occurrence of the fistulous opening between the bladder and abdominal cavity, allowing of the urine discharging through the wound, and the means taken to determine whether it was from the ureter or bladder, a question of utmost importance both as to prognosis and treatment.

7th. The very simple treatment which sufficed to heal so serious and unpleasant a complication.

8th. The case also illustrates pretty well the after-treatment generally adopted in cases of ovariotomy at the Strangers's Hospital, by large doses of morphia, though the doses were not so large as in many other cases. The temperature in the axilla never rose more than 102.8°, and was most of the time below 101.5°.

8 West 45th Street.

TRANSACTIONS OF THE NEW YORK OBSTETRICAL SOCIETY.

REPORTED BY PAUL F. MUNDE, M.D., SECRETARY.

STATED MEETING, JUNE 3, 1873. DR. J. H. POOLEY, JR., VICE-PRESIDENT, IN THE CHAIR.

IN continuation of the subject of septicæmia, which was the special order for the evening, DR. MUNDE read a paper designed to represent the existing state of the question, particularly the opinions now held in Germany.

STATED MEETING, OCT. 21, 1873. DR. B. F. DAWSON, PRESIDENT, IN THE CHAIR.

CASE OF RUPTURE OF THE UTERUS.

DR. W. T. LUSK presented a uterus which ruptured during labor, the rent extending transversely across the anterior surface, about two inches above the os externum uteri. The woman had had six labors, the pelvis was large and roomy, and the breech presented, and was descending well, when suddenly the pains, which had been strong and regular, ceased, and the woman became collapsed, and it was found that part of the child had escaped into the peritoneal cavity. The child was immediately extracted, and the woman died 15 hours after.

DR. JACOBI asked if the uterus presented had been examined microscopically for fatty degeneration or former lesion, which question was answered in the negative.

DR. POOLEY asked if, notwithstanding the apparent ease with which the child was delivered in this case, it would not have been better to perform gastrotomy, which would allow of easy extraction, a thorough emptying of the peritoneal cavity of all foreign matters, and a complete control of the bleeding points?

DR. NOEGGERATH said he considered Dr. Pooley's plan a good one.

DR. LUSK said the condition of the patient was such that he did not think any one would undertake gastrotomy, as she was collapsed and her pulse hardly perceptible.

DR. NOEGGERATH said that it is very important to decide in such cases whether shock or hemorrhage is producing the symp-

toms of collapse; if it be hemorrhage, then an operation is called; for if shock, an operation is not demanded or justifiable, even though there be fluids in the peritoneal cavity, for these could be evacuated through the wound.

Dr. Jacobi thought the reasoning too hypothetical. The principal symptom is shock, and nobody would operate. On general principles, if asked if we would operate in a case where a foreign body is in the peritoneal cavity, we would answer yes, but when we come to the practical question it is hard to decide; for instance, in perforation of the intestine from ulcerative process, theoretically we might say, wash out the cavity of the abdomen, yet hardly any one would undertake to do so.

Dr. Byrne said the main purpose of gastrotomy in these cases should be to save the child. Dr. B. had seen 7 cases of rupture of the uterus—3 in his own practice and 4 in consultation. In but one of these cases was he tempted to resort to the operation; fœtal movements were felt, but although the mother consented, the relatives would not allow the operation.

Dr. Lusk also presented an acardiac monster. A committee, consisting of Drs. Jacobi and Lusk, were appointed to examine and report on the specimen.

Dr. Lusk then presented the brain of a young girl, who had been confined 30 days previous to her admission to hospital, to which she applied on account of uterine hemorrhage. After admission she became very œdematous. At night she was noticed to go to the water-closet, where she was discovered, shortly after, cold and insensible, and, after restoration, was found to be completely paralyzed on the left side. On the 14th day she became delirious, and died on the 18th day. On post-mortem, a softened spot was found in the corpus striatum of the right side, as well as in the island of Reil. The middle branch of the middle cerebral artery contained emboli, and vegetations were found on the aortic valves.

The following gentlemen were elected officers for 1873-74: President, Dr. E. R. Peaslee; Vice-Presidents, Dr. John Byrne, Dr. T. A. Emmet; Recording Secretary, Dr. Paul F. Munde; Corresponding Secretary, Dr. Emil Noeggerath; Treasurer, Dr. G. S. Winston. Committee on Publication: Dr. Paul F. Munde, Dr. B. F. Dawson. On Admission: Drs. A. Jacobi, E. Noeggerath, J. E. Jamison.

Stated Meeting, Nov. 4, 1873. Dr. E. R. Peaslee, President, in the Chair.

REPORT OF COMMITTEE ON CASE OF ACARDIAC MONSTER.

The acardiac monster presented at the preceding meeting,

has only two complete toes, and one boneless rudiment attached to the foot, the muscles of which are complete, the extensor communis showing the peculiarity that it is attached to the third metatarsal bone; the thigh is complete; there are two kidneys, with their ureters, the right kidney being situated higher than the left; the ribs and vertebræ are complete; there is, as usual, no sternum; surmounting the vertebral column is the rudiment of a cranium. There is a pretty well developed bladder; the testicles are not distinctly apparent, although they were supposed to be discernible at the autopsy.

The large pouch which occupied the cephalic extremity of the monstrosity was filled with gelatinous fluid, and when extracted and unopened, was considerably larger than an adult head. The placenta showed two umbilical cords, with a common insertion. There is, as is usual in these cases, an anastomosis between the umbilical arteries and veins; consequent on this we have an obstruction to the circulation and thrombosis; the heart of the weaker fœtus gradually stops, and the nutrition of the latter is accomplished by the current of blood from the other and stronger child. The heart having thus stopped and gradually disappeared by atrophy, we find those organs which are supplied with blood directly from the umbilicus—the lower extremities—generally well developed; exceptions are the liver, spleen, and pancreas, which are wanting in this specimen.

Dr. Jacobi, a member of the committee, presented a number of monographs on acardiac monsters, and remarked that the first accurate and really scientific description and explanation of this malformation dates only fourteen years back, when Claudius described a few new cases and published a compilation of one hundred and twelve previous specimens. Claudius's theory was, that about the time when the allantois disappears the two umbilical cords of the two perfectly independent fœtuses are inserted so closely together as to anastomose, when the stronger current retards and finally suppresses the weaker, the heart of the latter becoming atrophied and disappearing entirely. This theory must, however, be modified in some instances, for there have been several cases in which a heart was existing, which must be otherwise explained. One form, called acormus, has been observed but five times; in it the lower extremities are wanting or incomplete, instead of, as usual, the upper. This is owing to the fact that when the heart is wanting, the upper extremities directly supplied from it are deficient; but when the vessels supplying the lower extremities are deficient, even if the heart exists, these extremities are imperfectly developed. Since Claudius a number of new cases

have been described, the last case, related by Moldenhauer, in the "Archiv für Gynäkologie," vol. v., part 2, presented the anomaly that the umbilical cord was inserted in the lower portion of the trunk, in consequence of which peculiarity the lower extremities were atrophied.

The principal work on acardiaci is that of Ernestus Elben, Berlin, 1821. The oldest work shown by Dr. Jacobi was entitled "Lycetus de Monstris," dated 1665. In it is described a case of acardiacus ascribed to imagination, the mother during pregnancy having seen only the trunk and legs of a deformed beggar, without, however, having been particularly agitated at the sight. Another book, "Sacra Embryologia," published in Italy in 1764, describes the rites of baptism of acephalic and other monsters, and ordains that a child is to be baptized as many times as it possesses heads, no account being taken of the number of bodies.

Dr. Noeggerath asked whether an acephalous monster is always one of twins?

Dr. Jacobi answered that no case was known in which an acardiacus had been born as the only child of that birth, that both children are of the same sex and have a common placenta. The acardiacus is not nourished by the placenta, but by the used-up venous blood of the normal fœtus.

Dr. Lusk asked whether they always came from one ovum?

Dr. Jacobi said not necessarily, but the two ova might be so near together that a communication between the vessels, sometimes extra-placental, may occur.

CASE OF RACHITIC FATTY DEGENERATION OF THE LIVER.

Dr. Jacobi presented a specimen from a child which died two days before of bilateral pneumonia, after an illness of twelve days. The child was of a rachitic diathesis, large, pale, flabby, with a large head. There is one more rachitic child in the family. The thymus gland is very large. The principal object of interest is the liver, which is very large, and presents extremely marked fatty degeneration. The livers of children are often larger than proportionally in adults, on account of some defect in assimilation. We should distinguish between fatty infiltration, which is comparatively innocuous, and fatty degeneration, which is of vastly greater importance, and which is generally accompanied by fatty degeneration of the heart and kidneys. In this case the fatty disorganization was owing to the rachitic disease, the kidneys and spleen were merely hyperæmic.

CASE OF ABORTION IN THE THIRD MONTH.

Dr. Jacobi also presented a specimen from a lady with chronic nephritis, mother of two older children and a baby eight months of age, who had menstruated last in the country on the 11th of July, 1873 (perhaps a miscarriage?), and had not been unwell since until October 16th, three months later, when she lost a mass shaped like, and evidently by, the cavity of the uterus, together with a quantity of blood. The upper portion of the mass is flat and hard, and presents a cavity containing clots of blood and a minute fœtus, which corresponds in its development with one of the third week, and accurately resembles a wax-cast of an embryo of that period. Distinct and numerous villi (placental tissue) are found only in the lower portion of the specimen, whence Dr. Jacobi concludes that the lady having conceived about the end of July, and the fœtus dying from hemorrhage about three weeks later, the development of the placenta ceased almost completely in that portion of the organ where the hemorrhage took place, *i.e.*, the upper portion of the specimen, and the lower portion still grew and developed until the whole mass was expelled. The placenta thus died at a different period—later—than the fœtus.

Dr. Peaslee said that such cases are interesting also in a medico-legal point of view, and mentioned one occurring in his experience.

CASE OF RUPTURE OF UTERUS.

Dr. Lusk presented another specimen of a ruptured uterus, taken from a woman who entered Bellevue Hospital on the Saturday previous. The pains had commenced on the preceding Sunday, had suddenly ceased the day after, when the rupture probably occurred, and on Friday last some hemorrhage appeared, which, as well as the exceedingly prostrated condition of the patient, induced her friends to bring her to the hospital. Stimulants were freely administered without avail. The hand was introduced through the cervix as far up as the elbow, the feet were found in the uterine cavity, seized, and the child turned and extracted. The child was far advanced in decomposition, and weighed 11 or 12 pounds. The uterus contracted well, and no blood was lost during the operation. The woman died the next morning. At the autopsy a large rupture was found, almost completely separating the posterior portion of the cervix from the body of the uterus; there was also a smaller perforation in the anterior cervical wall.

STATED MEETING, DEC. 2, 1873. DR. E. R. PEASLEE, PRESIDENT, IN THE CHAIR.

SPECIMEN OF FATAL CAUTERIZATION OF LARYNX AND ŒSOPHAGUS.

DR. JACOBI exhibited the digestive organs of a child, nine months of age, which had been taken ill with what was reported to be croup. The medical attendant advised cauterization of the larynx, and attempted it with the solid stick of nitrate of silver; the stick broke, however, and the child swallowed the detached portion. The child died, and the specimen removed at the autopsy was sent to Dr. Jacobi, with the above imperfect history. The epiglottis, upper vocal chords, the whole interior of the larynx, and the upper portion of the trachea appear considerably reddened and hyperæmic, which, however, may be partly due to imbibition; at all events there were no traces of croup, but only the indications of a simple laryngeal catarrh. The action of the nitrate of silver was not localized, but the whole laryngeal mucous membrane was equally injected and hyperæmic. The œsophagus was injured by the caustic to the extent of one inch at its commencement, a distinct eschar being visible; the stomach shows no injury in its cardiac portion, the piece of caustic having followed the dependent position of the organ and lodged near the pylorus, where a solid piece of the stick of the nitrate of silver is still to be seen, surrounded by a thick layer of albuminates and embedded in the coats of the stomach; there is no secondary local inflammation about this spot, an observation agreeing with the acknowledged action of lunar caustic.

CASE OF MONOPUS.

DR. JACOBI presented a second specimen, that of a so-called monopus, an infant born at about the sixth month of intra-uterine gestation, with only one lower extremity, the right leg being entirely absent. There is no umbilical cord, the umbilical vessels running in and proceeding from a membrane composed of peritoneum and amnion, which form the covering of a pouch of the size of an apple, attached to the lower and right portion of the pelvis. The anus and genital organs are wanting; in their stead there is a common opening into which a sound can be introduced and passed into an oblong organ, situated on the left side of the abdomen, and connected with the intestine, and possessing appendages, evidently the uterus. The liver contained the umbilical vein, its left lobe was very small; on the right side was found a kidney with an unusually large supra-renal capsule. The spleen and stomach were nor-

mal. A more careful investigation of the specimen will be made, and reported at a subsequent meeting.

NORMAL OVARIOTOMY.

Dr. T. G. Thomas reported a case of normal ovariotomy (removal of both ovaries as a cure of the intense and incessant nervous suffering attributable only to them, and not on account of the usual cystic degeneration) performed by him 11 days ago, which was doing very well.*

CASE OF OVARIOTOMY.

Dr. Peaslee related a case of ovariotomy, in which the operation presented no peculiar features, with the exception that the cut edge of the pedicle, although the ligature was fully three-fourths of an inch beyond the end, slipped through the ligature, when retraction took place and hemorrhage occurred, which was easily controlled by separate ligation. This is the third time this accident has happened to Dr. Peaslee; attention was called to it as long as 25 years ago. The patient did well until the fourth day, when she was suddenly and unaccountably seized with intense muscular and mental excitement, similar to mania, against which no remedies proved available, and died from exhaustion on the following day. There had been only slight signs of peritonitis on the third day, no tympanites, but the temperature and the pulse were somewhat febrile. At the autopsy no peritonitis, no fluid in the abdomen, or any palpable cause for the mania could be found.

Dr. Thomas related a similar case of mania coming on suddenly after ovariotomy, and terminating fatally.

INTRA-UTERINE USE OF NITRIC ACID.

Dr. Chamberlain reported exceedingly favorable results from the intra-uterine application (to both cervical and corporal canal) of the chemically pure nitric acid, which he has used in 4–5 dispensary patients, without the least unpleasant results. The application is made by means of a glass stylet, with cotton wrapped around the end, which is dipped in the acid, and introduced through a slightly-bent glass tube.

Dr. Thomas has used the nitric acid very frequently, in fact uses it daily in his office, and knows no application to the cervix which he likes so well. He would hardly like to carry it so far

* A detailed account of this rare and interesting operation will appear in a subsequent number of the Journal.

up as the fundus, certainly not in an office-patient, who is unable to remain perfectly quiet for some little time afterwards.

GALVANIC CAUTERY IN UTERINE HEMORRHAGE.

DR. JACOBI mentioned a case of uncontrollable hemorrhage after a miscarriage, which he rapidly checked by the intra-uterine application of the galvanic cautery, introducing the burner cold to the fundus, heating it rapidly and immediately cooling it again, leaving it in the uterine cavity in all perhaps half a minute.

STATED MEETING, DEC. 16, 1873. DR. PEASLEE, PRESIDENT, IN THE CHAIR.

NEW STEM-PESSARY.

DR. PEASLEE presented a new stem-pessary, made according to his directions by Ford of this city. It is composed of a slender, hard-rubber stem, blunt-pointed at one end and with a button at the other, on which the cervix is to rest. Two slender steel springs are attached to either side of the stem, which, the pessary being introduced by means of a sound-shaped conductor, diverge when that conductor is withdrawn, and retain the pessary in place. These springs are very soft, being compressible by a pressure equal to two ounces in weight, and are incapable of injuring the uterus. He has used it in several cases, leaving it in utero for two weeks without the least evil results, and with but a slight increase of uterine discharge. He offers three chief propositions for the use of stem-pessaries: 1. A stem-pessary is never to be used except in a case of flexion, as a rare exception in some cases of version. 2. A stem-pessary even then is always an objectionable instrument, and is to be used only when no other instrument will serve the object. 3. There are certain cases in which a stem-pessary must be used, and in which no other instrument will supply its place.

DR. BYRNE thinks the cases should be carefully selected, and particular care taken not to introduce the stem in any case where there is abnormal sensitiveness of the uterus; also that the stem be at least $\frac{1}{8}$ inch shorter than the uterine cavity.

CASE OF METRITIS AND PELVIC CELLULITIS PRODUCED BY THE TOO PROTRACTED WEARING OF A STEM-PESSARY.

DR. MUNDE related a case, at present under his care, in which the too long continued wearing of an intra-uterine pessary had been followed by a severe attack of metritis and pelvic cellulitis. The patient had an extreme degree of anteflexion, for

which numerous mechanical, and even operative, as well as other remedies had been applied in vain by other physicians and by Dr. Munde, who finally proposed the introduction of a stem-pessary. The intra-uterine pessary devised and used by Greenhalgh, in London (which its inventor, by verbal communication, employs very frequently and considers entirely innocuous, leaving it in situ even during horseback exercise, and which Dr. Munde had employed for over two weeks in a previous case without injury), consisting of a series of movably connected links of zinc and copper, was introduced, on the director made for the purpose, without any difficulty. The patient felt some pain immediately after the introduction of the pessary, which soon subsided, and the patient was dismissed with strict directions to return at once if she experienced any severe pain in the uterine region, and have the instrument removed, or to remove it herself, which she proved herself, by experiment in Dr. Munde's office, perfectly able to do. About a week later she returned, saying that she had removed the pessary because it pressed too much on the rectum; but that she wished it reintroduced, as she felt much relief and complete cessation of the well-known harassing lumbar pains while wearing it. It was reapplied, and again caused some considerable pain. The patient would not allow it to be removed, however, as Dr. Munde wished, and left the office with the strict injunction again to remove the instrument and present herself at once if she experienced any severe pain. She did not return till over a week later, bringing the pessary in her hand. She had worn the instrument for four days after it was last introduced, in spite of the intense pain it caused her, thinking, with an obstinacy peculiar to her, that she would get used to it after a while. An examination showed fresh exudation all about the uterus, but principally behind and on the right side of the organ. She is now in bed under treatment, but doing well.

CYSTITIS IN WOMEN.

Dr. Skene said that he had had of late several cases of cystitis in females which had given him much trouble. He wished to ask the Society whether it had been noticed that some of the symptoms differed according to the cause of the cystitis. Thus in simple cystitis frequent and painful micturition is a leading symptom, and there is but little relief experienced by the voiding of the urine. In cystitis, or frequent distressing micturition dependent on adhesions, displacement of the uterus, pelvic cellulitis, and other uterine and pelvic diseases, the

emptying of the bladder is attended with great relief to the patient. In the latter cases the position of the body makes a difference; the erect position generally increases the distress. In simple cystitis, position of the body exerts no influence whatever. A very distressing feature of the frequent micturition is the disturbance of the night's rest. In one case Dr. Skene procured great relief by the introduction and leaving in place of Sims's sigmoid catheter during the whole night.

Dr. Byrne coincided with Dr. Skene. He thinks there are many cases of supposed cystitis which are only cases of granular inflammation of the urethra far up the canal, which keeps up a constant irritation of the bladder. He related the case of an old lady, who had suffered for many years with cystitis, against which no treatment had been successful. Discovering this granular condition of the urethra, he cauterized the canal with the galvanic burner, and afforded the patient so much relief that she has since requested the operation to be repeated, although, owing to some trouble of the vascular system (atheroma), she was obliged to undergo the operation unnarcotized.

TRANSACTIONS OF THE PHILADELPHIA OBSTETRICAL SOCIETY.

Reported by J. V. INGHAM, M.D., Secretary.

Stated Meeting, May 1, 1873. Dr. W. Goodell, President, in the Chair.

Dr. R. P. Harris read a paper giving an account of some cases of early menstruation and conception (see page 571).

Dr. Ludlow referred to two cases under his own observation. One, a child of 12 years of age, was delivered at term. She had never menstruated. Another case, a negress, was delivered at 13 years of age.

Dr. W. T. Taylor referred to a case that he had reported in *The Medical Examiner*, in 1852; the girl was 13 in February, and in August was confined.

Dr. McCall had been called to a girl 13 years and 3 months,

and delivered her of a four-months' fœtus. She made a good recovery.

Dr. De F. Willard gave the history of a case as follows: A child, brought up in a house of prostitution from the age of 8 years, had had connection at least once a week with the boys of the neighborhood. At 10 years she menstruated. At 11 years and 2 months she became pregnant, and was delivered by him when 11 years, 11 months, and 24 days old. The labor was normal, and the mother did well for two weeks, when she had milk-leg in both limbs. She afterwards led a life of prostitution, was syphilized, then got married, and has had several miscarriages since.

Dr. Betts mentioned a case of menstruation at 7 years and 5 months.

Dr. Ludlow suggested that some of the supposed cases of early menstruation were merely those of bloody discharges.

The report of the committee on the preparation of rules for the management of infants during the hot summer months was then read and adopted.

Stated Meeting, June 5, 1873. Dr. W. Goodell, President, in the Chair.

Dr. J. V. Ingham presented two specimens of hydrops tubæ Fallopii.

These specimens were of interest from their dissimilarity. The first one exhibited was entirely free from attachments to the uterus, except by the natural extremity of the tube. In the other case, however, the cysts were bound down upon the posterior wall of the uterus by an extensive perimetritic inflammation. The points of interest suggested were the diagnoses and treatment. Could the cysts be recognized except through the rectum? Should they be punctured?

Dr. Ingham also exhibited a retro-uterine fibroid tumor.

Dr. Jenks remarked that these cases were of interest on account of points of diagnosis. There are many pathological conditions which upon rectal exploration might be confounded with a tumor of the posterior wall of the uterus. Among others an enlarged ovary, a cancerous growth, an inflammatory effusion, or exudation in which absorption is taking place, were suggested.

Dr. Goodell asked the members of the Society to give the results of their experience in the use of Hildebrand's method of treating uterine tumors by the hypodermic use of a solution of ergotine in glycerine or water.

He referred to one case which had been so treated with benefit. Another case had been reported by Dr. Ashhurst, in which the tumor materially diminished under the use of ℥xx. thrice daily of a solution of ergotine.

In only one case did he know of any tendency to abscess. In reference to the hypodermic injections, the great trouble was the intense pain experienced.

Dr. Ludlow referred to a case under his own care, in which the tumor diminished under the use of ergot and iodide of potassium. He instanced another case in which the tumor had disappeared, but returned after a few years.

He asked whether many successful cases of the use of ergotine had been reported.

There was a tendency to too great a haste in generalizing from small data.

Dr. Goodell referred to a recent article in *The American Practitioner*, in which two cases were given, and to several reported in British journals. He suggested that care should be taken to make the injections in an unexposed portion of the body, as the discoloration of the skin by the ergotine was very persistent. The least sensitive part of the body has been found by Dr. Hildebrand to be in the region of the umbilicus.

Dr. Ludlow suggested the possible danger of peritonitis from the formation of an abscess in this position.

A highly interesting specimen of twin embryo, belonging to Dr. S. A. Gerhard, was exhibited.

Dr. A. H. Smith gave a brief history of the case as he had obtained it from Dr. Gerhard. The patient had had several miscarriages previously.

She had gone five days beyond her last menstrual period, when, after some extra exertion, she was seized with a profuse hemorrhage, with violent pain. On examination the os was not patulous, and the cervix rigid and firm. A tampon was introduced, and suffered to remain for eight hours. Upon removing the tampon the Doctor found a large clot following it, upon which was the glistening surface of one of these cysts. One cyst was of the size of a walnut, the other of a hen's egg. Dr. Smith thought that the patient could not have been pregnant more than three weeks, but these sacs were distended to the size generally found at two months, therefore there must have been amniotic dropsy. This was probably the cause of the abortion.

Dr. Jenks made remarks at length upon the development of ova at an early stage.

Dr. Jas. H. Cathcart presented a specimen of cancer of the

uterus. The morbid growth had first appeared as a cauliflower excrescence, nearly filling the vagina, and springing apparently from the inner surface of the posterior lip of the cervix. This was removed entirely by scraping, leaving the neck clean and with no tendency to bleeding. In two months the mass had returned, and on consultation with Dr. Parry the cervix was amputated, but the growth returned in three weeks' time. After being treated by several irregular practitioners the patient came under the care of Dr. Barr, through whom the specimen was obtained.

Dr. Parry remarked one peculiarity of the cancerous mass, —that was the unusual extent to which it had involved the body of the uterus. Another feature was the dilated ureter and pelvis of the kidneys, yet these were apparently not dependent upon the carcinoma.

Dr. Wharton Sinkler exhibited a child with congenital deficiency of the left forearm. This case was reported to the Society by Dr. Geo. Pepper, and was again shown as being of interest in connection with the case of Dr. Beecher.

Dr. J. L. Ludlow presented a collection of stomachs of infants of various ages, from nineteen days to five months. These stomachs did not vary in size, in accordance with the ages of the children.

Dr. Ludlow remarked that he presented these specimens to bring the attention of the Society to the fact that the quantity of milk necessary for the infant does not depend upon its age or size, for in many cases a large child may have a small stomach, and a small child a large one. He thought that there was a limit to the quantity of food, and the time of feeding, which should be carefully ascertained.

Dr. Wm. T. Taylor read an account of a case of successive abortions from congenital syphilis.

He remarked that the peculiarity of the case was that each succeeding pregnancy advanced a little farther in age. He desired to know the opinion of the gentlemen of the Society in regard to the value of persistent constitutional treatment of the mother in these cases.

Dr. Ludlow remarked that this question had already been before the Society several times, and many cases illustrating the value of such treatment had been given.

He had early noticed the intolerance of iodide of potassium manifested by some patients, the effects upon the Schneiderian mucous membrane, and other symptoms following its administration. Other patients can take it for a long time, or for an indefinite time, without unpleasant effects.

Dr. Parry remarked that there were two facts in this case in favor of Dr. Taylor's theory of constitutional syphilis. The first was the fact of six abortions having taken place; the second was the presence of plantar-pemphigus in one of the children. Dr. Taylor did not mention whether there was any coryza or not. Pemphigus in a syphilitic child does not occur unless associated with coryza. The two symptoms always go together. Observations in thirty cases (twenty-eight French and two of Dr. Parry's) went to show that the power of the father to transmit syphilis was questionable. In this case the father was healthy. If the mother was also healthy he should be doubtful of the existence of syphilis. Other conditions could cause results similar to those in Dr. Taylor's case. Dr. Parry then referred to a case of a woman who had had six abortions, owing in every instance to fatty degeneration of the placenta.

Dr. Taylor remarked that he had not noticed any coryza.

The report of the committee upon the subject of congenital deficiencies was then read.

After the reading of the report the subject of the effect of maternal impressions upon the fœtus in utero was discussed by several gentlemen, who detailed instances supporting the popular views on the subject.

Dr. Ludlow had four well-authenticated cases. In one case the mother daily passed a child whose limbs were bandaged for white swelling. Her child was born with every limb dislocated. Another mother was frightened by a hideous face; her child was born with a hare-lip. In another instance the mother placed her hand upon her face on the occasion of a fire; the child was born with a red fire-mark upon the face.

Dr. Taylor had seen a child whose right hand was without fingers. The mother accounted for it by the fact that early in her gestation a beggar asked her for alms, at the same time thrusting out a mutilated hand.

Dr. Reuel Stewart recalled a case in which the mother asked immediately whether the child was well formed about the hands. Each hand had a supernumerary finger. The mother had been impressed by seeing a man pass her house with these supernumerary fingers.

Another child had a blue mark upon its face. The mother had been affected by a child falling and cutting its face.

Dr. J. V. Ingham exhibited a specimen of soft soap, as recommended by Dr. Atthill, for making vaginal examinations. He had used this soap with much satisfaction. He preferred it to lard, oil, etc., as a lubricating agent, because

it effectually prevented any smell from remaining upon the finger.

Dr. J. L. Ludlow referred to a curious case of irritable nipples. The mother had been preparing her nipples by using strong washes of alum, borax, etc. After the birth of the child it was unable to draw the milk, as the nipple had been tanned by the applications. Poultices were applied, and a thin skin removed, and then the difficulty was over.

Dr. Albert H. Smith was in the habit of recommending the hardening of the nipples, but had never seen any trouble arising from the use of astringent washes.

QUARTERLY REPORT ON OBSTETRICS AND DISEASES OF WOMEN AND CHILDREN.

The Formation of Retro-uterine and Ante-uterine Hematocele. By Karl Schroeder, Erlangen. (*Archiv für Gynäkologie*, v. 2. 1873.)

The capacity, and, indeed, existence of Douglas's cul-de-sac is physiologically dependent on the relative distention or emptiness of the bladder and rectum. When both these organs are filled, the entrance to the recto-uterine pouch is partly or entirely closed; when they are empty, the pouch is open, and folds of small intestine glide into it. Following the law of gravity, loose fluids in the abdominal cavity, such as serum or blood, likewise descend to the bottom of the cul-de-sac of Douglas, and the intestines, being filled with air and lighter, float on the fluid, which is itself displaceable at every motion of the body. This loose, movable fluid cannot be felt from the vagina as a tense fluctuating tumor, otherwise we should find such a retro-uterine tumor in almost every case of ascites or ovarian dropsy. But as soon as the fluid, be it blood or fluid pelveo-peritonitic exudation, commences to coagulate, the tumor becomes palpable per vaginam, and assumes a definite shape, size, and consistence. The uterus is then not materially displaced, but remains pretty much in the same position in which it was when the formerly movable fluid coagulated. If, however,

the entrance to the cul-de-sac become closed by peritonitic adhesions between the intestinal folds floating on the surface of the fluid, or by adhesive peritonitis of the entrance of the pouch, then, even a still fluid accumulation in the cul-de-sac is palpable from the vagina, and a fresh increase of that fluid (from some new rupture of a vessel or fresh exudation) will cause the displacement of the uterus anteriorly, so commonly found in retro-uterine hæmatocele. A hæmatocele generally, therefore, exists for some time before it is diagnosticated, which is hardly possible per vaginam until the cul-de-sac is closed at the top and the bloody effusion becomes a distinct encysted mass. In most cases of distinct hæmatocele, the blood, therefore, comes from a spot situated below the point of occlusion, and its origin is, therefore, almost always from one of the generative organs, the tubes, ovaries, peritoneum of the cul-de-sac, or blood-vessels of the pseudo-membranes themselves.

Blood from a source higher up in the abdomen may accumulate in the pelvis, but the characteristic tumor of retro-uterine hæmatocele, which pushes the uterus forward, is never formed in this manner. The inflammatory closure of the recto-uterine pouch is comparatively frequent, that of the ante-uterine cavity, however, very rare, as is also hemorrhage from that region; and, indeed, there are only two such cases of intra-peritoneal ante-uterine hæmatocele on record—one in conjunction with a retro-uterine hemorrhage related by Martin-Magron and Soulié, and the other by G. Braun. Schroeder now relates a third case which lately came to his notice, and which invalidates what has been said above about a hæmatocele not being palpable as such until after it has become encysted by closure of the aperture of the peritoneal pouch. For at the autopsy of this woman, who had died from the rupture of the sac in tubal pregnancy, a large, intra-peritoneal, ante-uterine accumulation of fluid and coagulated blood was found, which extended as far down as the neighborhood of the external os, was not retained in position by adhesions, and had been distinctly palpable during life as an unmistakable ante-uterine tumor. The posterior cul-de-sac, which contained some coagulated blood, was closed by adhesions, and the uterus slightly retroverted, whereby a species of vicarious fossa of Douglas was formed anterior to the uterus. The first hemorrhage caused the peritonitis which resulted in the closure of Douglas's fossa, the blood subsequently discharged gravitated into the anterior cul-de-sac, and gradually distended it till it descended to the level of the external os. The time between the first hemorrhage and the death of the patient was 26 days.

RETRO-UTERINE HÆMATOCELE. By DR. FRITSCH, Halle. (Volkmann's *Klinische Vorträge*, No. 56. 1873.)

WHILE some indefinite allusions to this affection are quoted from Hippocrates by Voisin, there is no doubt that Nélaton first clinically defined and named the disease now known as "retro-uterine hæmatocele," and that his descriptions were echoed and completed by his pupils Viguès, Gaillet, Bouchet; others, Denonvilliers, Huguier, Trousseau, Puech, Gallard, Richet, Delvalz, Rayer, Depaul, Oulmont, supported and added to Nélaton's views or dissented from them in one way or another. Among the Germans, Ferber, Führer, Credé, Braun, Hegar, Krieger, Betschler, Schroeder, and Olshausen sought to increase our knowledge on the subject, whilst Virchow demonstrated the pathologico-anatomical portion of the question. As ætiological points are mentioned: rupture of a Graafian follicle (Nélaton); coition during menstruation (Puech); internal varicosities (Richet, Delvalz); changes in the ovaries (Laugier, Delvalz); tubal hemorrhage, regurgitation of menstrual blood from the uterus (Bernutz, Goupil); obstinate constipation (Rayer, Depaul, Oulmont); temperament, exertion, catching cold, rupture of the sac in extra-uterine pregnancy (Viguès); hemorrhagic diathesis in acute exanthemata (Laboulbène, Helie, Simpson, Scanzoni, Barlow, Trousseau); cachectic hæmatocele (Voisin); exhalation of blood from the peritonæum (Huguier); a pelveo-peritonitis hemorrhagica menstrualis (Bernutz); more or less recent pelveo-peritonitis recurring from time to time—peritonitis hemorrhagica—(Virchow); Schroeder has attempted to prove that the objective presence of a tumor in the small pelvis can be ascertained only when the blood is poured into a closed cavity, consequently the primary occurrence must be the inflammatory adhesive closure of Douglas's cul-de-sac. Olshausen, however, considers the coagulated blood to excite inflammation, and the pelveo-peritonitis to be not the cause, but the result, of the hæmatocele.

The seat of the hemorrhagic exudation was by some considered to be only the cul-de-sac of Douglas (Nélaton, Denonvilliers, Fenerly, Oulmont). Puech admitted a lateral and anterior hæmatocele. Nonat speaks of extra- and intra-peritoneal hemorrhage, and Viguès once held the opinion that its seat was extra-peritoneal only. Schroeder, however, proved that an incontrovertible extra-peritoneal hæmatocele had been found only in one case (that of Ott, in Tübingen), and even then the ætiology of the case was obscure. Real traumatic extravasations of blood, traumatic hæmatocele, may occur in the pelvis as else-

where in the body; according to Winckel, such extra-peritoneal traumatic hæmatomata occur about once in 1,400 confinements, and are to be classed with thrombus vaginæ and not with hæmatocele proper.

Whilst the author does not pretend to decide the question as to the cause and origin of the hemorrhage, he attributes to each of the sources enumerated a greater or less share, with the exception of that first advocated by Nélaton, the rupture of the Graafian follicle during menstruation, which injury he considers too minute to account for so great a discharge of blood. He says: "The clinical condition first described by Nélaton is caused by a generally sudden intra-peritoneal hemorrhage from the organs of the small pelvis. The diagnosis of the organ furnishing the blood is generally impossible, and always without practical importance, but the diagnosis of the whole affection is easy. The symptoms in many cases are so characteristic as to admit of no other explanation. If you are called to a woman who tells you that she suddenly fainted, perhaps during menstruation, that she experienced a violent chill, continual pain in the pelvis which occasionally shoots into the thigh, and if, on digital exploration, you feel the posterior laquear vaginæ flat, somewhat projecting downwards, you can with certainty diagnosticate the affection in question. The sudden advent during perfect good health, or also after long-recognized pelveo-peritonitis, the distressing symptoms of acute anæmia, the cyanotic lips, the increased thirst, the small rapid pulse without increase of temperature, the respiration accelerated and interrupted by fear and pain, will permit you to banish all doubt as to the nature of the affection. If the disease came on after disturbance of menstruation, perhaps during an unusually strong menstruation, your diagnosis will be so much the more certain," etc.

As an aid in the differential diagnosis, particularly from peritonitic exudation, English authors have stated that, if menstruation have ceased, it is hæmatocele, if it has only been irregular, pelvic exudation. The usual absence of typical exacerbations of fever, and of increase of pulse and temperature (seldom over 39° Celsius) in hæmatocele is a valuable diagnostic sign. Schröder has shown the difference between the appearance presented by hæmatocele and a collection of blood in an atretic horn of a uterus septus; the latter occurs in nulliparous women at the age of puberty, and the tumor is usually lateral or anterior; the blood is not coagulated but merely thick, tarry.

Hæmatocele in a nullipara is a great rarity; in a parturient woman a set of symptoms ordinarily pointing to hæmatocele

would indicate a free extra-peritoneal hæmatoma, for an intra-peritoneal hæmatocele has never been seen at this period. Hæmatocele occurs mostly between the ages of 21 and 47, and principally among the poorer classes, those who are obliged to work and expose themselves to cold, over-exertion, and various other external influences. Its frequency is very differently stated by different observers, perhaps according to their greater or less skepticism or desire to see the disease. Seiffert saw, among 1,272 gynæcological cases, 66 hæmatoceles; Olshausen, among 1,145, saw 34; Weber, in St. Petersburg, met it in 2 per cent. of his cases. On the other hand, Scanzoni saw only 2 cases in 20 years; Spiegelberg saw no case among 363, and Hugenberger none among 3,801 gynæcological patients. The treatment recommended is the expectant; operative interference being absolutely forbidden. Tepid-water compresses on the abdomen are very agreeable and useful to the patient; ice externally is generally superfluous, for simple pressure with a sandbag will arrest the hemorrhage as well or better (? Rev.), and in peritonitis a poultice is more agreeable. Only a fresh secondary hemorrhage will call for ice. Rest, narcotics, and the usual dietetic measures complete the therapeutic rules. Absolute rest during the next menstrual period, for fear of a relapse, is recommended, as also tonics and baths for the usually existing anæmia.

On the Complication of Pregnancy and Parturition with Cancer of the Uterus. By Dr. Cohnstein, Berlin. (*Archiv für Gynäkologie*, v. 2. 1873.)

With the view of systematizing and defining the numerous conflicting opinions on the history, pathology, and especially the therapeutics of this complication, Cohnstein has collected from the literature on the subject 134 cases, which he has analyzed as regards the age and number of previous confinements, the nature and seat of the cancer, the course and termination of the labor, and the result for mother and child, and from which he draws the following conclusions and deductions:—

1. There are two varieties of cancer of the womb, the so-called epithelioma, with papillary hypertrophy (cauliflower excrescence), and the epithelial infiltration of the lips of the os uteri, or of the cervix, without papillary proliferation. The first superficial variety, in the course of time, passes into the second deep form, or true carcinoma.

2. The diagnosis of the first stage of cancer of the womb is

extremely difficult. The greater density, hardness, and irregularity of the tissue in cancer (Chiari), and the presence of indurated Nabothian follicles (Montgomery), which occur in chronic catarrh, are too uncertain and relative signs to be of value. The two signs lately reported by Spiegelberg, viz., that the mucous membrane is always firmly adherent to a cancerous degeneration, and that dilatation by a sponge-tent does not in the least change the hard cancerous infiltration, deserve more attention. A further help to diagnosis is pregnancy, first, because a mere hyperplastic induration becomes more or less softened during that state, and cancer remains unchanged; and secondly, because hyperplastic induration of the uterus frequently prevents conception, whereas cancer of the cervix uteri rather favors it, partly, because when the disease is at a more advanced period, the open, gaping, cervical canal gives free admission to the spermatozoa, and partly, because it is not unfrequently the case that women with carcinoma uteri are sexually more passionate than others. Conception may take place in both varieties of carcinoma, and even at a very advanced stage of cancerous ulceration.

3. Of 127 cases complicated with pregnancy, of which 10 only were papillary epithelioma, the cancer attacked the anterior lip 12 times, the posterior lip 7 times, the whole os 22 times, one side of the cervix once, the whole cervix 85 times. In 27 cases the disease had spread to the corpus uteri, in 6 of which the whole uterus was affected. In 12 cases the disease spread from the cervix to the vagina; twice only was the reverse the case.

4. If conception has occurred, the pregnancy reaches term more than twice as often as it is prematurely interrupted. Of 100 cases, 68 went to term, in 15 miscarriage (4 in the 4th month), in 15 premature delivery took place (8 in the 7th month), 2 went beyond term (one was delivered at 10½ lunar months, mother and child alive, and in the other the mother died in the 17th month, of peritonitis; the child had been dead 7½ months, and was not decomposed). This prolongation of pregnancy is probably owing to the inability of the weak pains to overcome the obstacle existing in the cancerous cervix.

5. The variety of the cancer exerts no influence whatever on the time of delivery. The extension of the disease, if it involves the whole cervix, will induce miscarriage rather than premature delivery, and if it spread farther still, a premature confinement occurs only in 20 per cent. of the cases. Therapeutically it is important to note that, not only when the cancer began shortly before conception, but also when the whole cer-

vix and lower portion of the corpus uteri has become involved, the pregnancy goes to term in the great majority of cases.

6. Pregnancy, on the whole, exerts a favorable influence on the progress of the cancer. In those cases where the disease began to develop during pregnancy, its more or less rapid progress was noted; in those, however, in which it had existed before conception, no appreciable progress—indeed, rather an arrest of development was observed. The disturbance and inconvenience accompanying cancer of the womb is also usually temporarily diminished during gestation. E. v. Siebold even asserts that carcinoma uteri has been cured by pregnancy and delivery!

7. The cancerous degeneration of the cervix has been mistaken for placenta prævia, a papillary excrescence in epithelioma for the hand of a fœtus. Pregnancy may be overlooked in carcinoma; but the least sign of it, particularly if an operation be intended, should be carefully attended to, knowing, as we do, that cancer of the cervix favors conception. It does not follow, however, that pregnancy would necessarily forbid the proposed excision of the carcinoma.

8. The prognosis is, numerically, decidedly more unfavorable for the children than for the mothers.

Of 126 mothers 54, = 42.9 per cent., recovered, and 72, = 57.1 per cent., died during labor or the puerperal state.

Of 116 children 42, = 36.2 per cent., were born alive, and 74, = 63.8 per cent., were born dead.

Of these 74 still-born children, the death of 29 was owing to uncalled-for operations performed on them during labor, to the death of the mothers undelivered, and to the undue prolongation of the labors. The true figure, then, would be only 38 per cent. of mortality.

Of the mothers, 19 died undelivered, and 53 after delivery or in puerperio; 31 times death ensued during labor or immediately afterwards, thus showing that labor itself is more dangerous than the puerperal state. The causes of death were peritonitis, puerperal fever, anæmia, rupture of the uterus, cancerous metastasis. Those mothers survived longer who had been delivered at term than those who had been confined prematurely. As regards the diminution or prolongation by the puerperal condition of the average time of 1 to 1½ years allotted to carcinoma, it must be confessed that pregnancy, labor, and puerperium *together* further the rapid progress of the disease; the favorable influence of pregnancy alone is more than compensated for by delivery and the puerperal state.

9. The degree of dystocia depends on the extent of the de-

generation and the mechanical obstacle it presents to delivery. Disease of one of the lips of the cervix only will generally permit the easy and safe expulsion of the child; more extensive degeneration usually entails tedious labor, bruising and laceration of the cervix, and perhaps complete rupture of the uterus; even if the delivery be spontaneous, the membranes rupture very early, and the tedious labor thus also endangers the life of the child. At a still more advanced stage of the disease the firm infiltrated cervix presents an insurmountable obstacle to spontaneous delivery, artificial aid becomes necessary, or if the latter be neglected, the woman dies from rupture of the uterus, or, undelivered, from exhaustion, peritonitis, or anæmia. In rare cases the pains cease, and the pregnancy oversteps the natural limits. The various dangers of labor and the puerperal state met with in normal deliveries are, of course, intensified by this complication.

10. The adoption of the correct plan of treatment is a matter of some difficulty. Various old remedies, such as venesection, mercurials, and other agents and applications for the purpose of softening and arresting the cancerous degeneration, are no longer relied upon. As a rule, we may say that as long as the woman is not exhausted, the cancer confined to one lip of the os uteri, and the membranes are unbroken, nature alone should be relied upon to terminate the labor. For cancer of the anterior lip, the result of expectant treatment is favorable for the mother in 75.5 per cent., for the children in 83.3 per cent. If the disease, however, has spread to the whole os and the cervix, the results are less than one-half as favorable, viz.: 37.5, and 33.3 per cent., and even less.

Spontaneous dilatation of the lower orifice of the uterus in advanced cases either does not take place at all, or only by means of more or less extensive laceration and rupture of the cervix. If incisions of the cervix are made, they are extremely liable to be torn, even to the extent of opening the peritoneal cavity; they were made in nine cases, and delivery accomplished by the forceps, version, extraction, and cephalotripsis—the favorable result was for the mothers, 50 per cent., for the children, 62.5 per cent. Manual dilatation has been twice tried in vain. Incisions of the os and cervix are to be recommended principally when the labor pains are insufficient to expel the child. Their dangers have been hinted at and are obvious.

The forceps was applied five times (favorable result: mothers, 75 per cent., children, 50 per cent.); version and extraction eleven times (favorable result: mothers, 18.1 per cent.,

children, 12.5 per cent.; the latter mortality was greatly owing to the difficulty of extraction).

"Craniotomy and embryotomy destroy the life of the child without profiting the mother." Of six women, upon whom these operations were performed, two died of rupture of the uterus, one—undelivered—during the operation, and one in puerperio.

The induction of abortion and premature labor might be justified by the fact that more than three times as many women die at term than after abortion, the ratio of mortality for abortion, premature delivery, and delivery at term being 8: 13: 30; but inasmuch as most of the mothers die during or soon after the puerperal state, and the life of the child thus becomes of primary importance, this fact loses its value as a therapeutic indication.

Excision of the cancer was performed in six cases; all of the mothers survived the operation, one dying on the seventh day; four children were born alive, one was macerated. Of course, only such a tumor as would be likely by its size and pressure on the neighboring organs to be troublesome during pregnancy and labor would call for removal, which is best undertaken at the end of pregnancy or during labor, "for the uterus bears great injuries at no time better than during labor." —(Michaelis.) A vertex presentation should, if possible, always be produced by external manipulation, for the forceps offer much better chances than version and extraction. If the excision of an epithelioma has been neglected before, it seems advisable to perform it during the puerperal state (Jacobi and Cormack). Cases reported by Langenbeck, Lisfranc, Putegnet, and Simpson prove that the removal of a cancerous cervix does not prevent a new and even speedy conception.

The Cesarean section was performed only four times in the cases reported by Cohnstein; only one of the mothers died, not from the operation, but from a previous rupture of the uterus. Stein, the younger, Baudelocque, Oldham, and Spiegelberg favor this operation; and the latter says that it offers all the chances for the preservation of the child, and is hardly more dangerous to the mother than the condition which calls for it. Scanzoni only allows it when the cancer is so extensive as not to allow of the extraction *per pelvem* of even a mutilated child.

The alternative of craniotomy and Cesarean section does not exist, in view of the exceedingly poor results of the former operation.

Enumerating the operative procedures which offer a more

or less favorable prognosis both for mother and child, we have, beginning with the least favorable:

1. Incisions of the os and cervix;
2. Forceps, applicable and reallybeneficial only in cancer of the os and a very small portion of the cervix;
3. Excision of the tumor, applicable only in certain specified cases;
4. Induction of abortion or premature labor, doubtful for the mother, hopeless for the child, considering the statistics of infantile mortality after the latter operation;
5. Cesarean section, which certainly offers the best chances for both mother and child; for the former, no worse than the disease for which the operation is performed; for the latter, as good as Cesarean section at any time, if it be performed at a sufficiently early period of labor.

Version and extraction and craniotomy deserve no mention as advisable operations, owing to the unfavorable results following their employment.

THE PELVIS IN CONGENITAL DOUBLE LUXATION OF THE HIP-JOINT. By ERNST SASSMANN, Erlangen. (*Archiv für Gynäklogie*, v. 2. 1873.)

S. describes a case of this somewhat rare affection (only 28 pelves of this class have been described), with a view to its ætiology and pathogenesis, and draws therefrom the following facts and conclusions:—The changes gradually produced in the pelvis by the deformity in question are various in degree, but constant in the following particulars: an increased inclination of the pelvis; an open, absolute, but always relative increase of the transverse, and diminution of the conjugate diameter; a constant increase of the transverse, and decrease of the antero-posterior diameters towards the pelvic outlet; a usually exceedingly perpendicular position of the cristæ ilii, and a sharp flexion of the coccyx forward. The whole pelvis is generally lighter and more slender than usual, and presents a flattened appearance from above downwards.

Congenital luxations of the hip-joint are now understood to originate in two ways; in one of which, for some as yet unknown reason, the acetabulum is primarily not formed in its normal situation, but at some other spot of the ileum, which is, therefore, a fault of development, and in the other of which the dislocation occurs either in utero or during early extra-uterine life, in consequence of some disease of certain portions of the

nervous system, paralysis or weakness of one group of muscles or other, whereby their antagonists acquire a supremacy and produce the dislocation of the head of the femur from its normal socket.

At birth the pelvis presents the usual appearance; its walls are higher and steeper than at the adult age, the transverse diameter is absolutely and relatively much shorter than the conjugate or diagonal diameters, the sacrum is perpendicular, and the pubic angle very acute. Gradually under normal conditions, as the child grows, the pelvis changes to the shape and form natural to the adult age. The same influences which produce this change also cause the peculiar shape of the deformed pelvis under discussion, and are the following: the weight of the body in sitting, and still more while erect; the tension exerted by the posterior ileo-sacral ligaments on their points of attachment, the posterior superior spinous processes of the ilium; the pressure of the head of the femur on the acetabulum and the lateral pelvic wall of each side (this pressure is equalized in the normal pelvis by the pressure of the trunk during standing or walking), and the action of the various groups of muscles going from the pelvis to the thighs. These influences cause the deformity peculiar to double congenital luxation of the hip-joint in different ways, according as the luxation is to be considered due to faulty development or to actual dislocation of the head of the femur, as mentioned above. In the former case, before the weight of the trunk presses on the still soft pelvis, that is, in the recumbent position of infancy, no change is produced in the shape of the pelvis. As soon as the sitting or erect posture is assumed the influences mentioned above exert their full power. In the latter case, however, where there is a real dislocation of the head of the femur, the pelvis becomes deformed and distorted by the action of the muscles before the weight of the body has had occasion to exert its influence, thus, before the child can either sit or walk. The light weight and slender shape of these pelves is doubtless owing to the less active use of the muscles and ligaments attached to them, owing to the inability to walk properly, to the greater transverse tension of the pelvis, and probably also to the same unknown cause to which the imperfect formation of the acetabula in an abnormal position is to be attributed.

Practically, S. finds that in pregnancy and the puerperal state the prognosis is hardly less favorable than in women with normal pelves. In labor, however, particularly if the increase of the transverse diameter be excessive, and the conjugate consequently corespondingly diminished, there is generally some

reason for apprehension both for mother and child, and deliveries are apt to be either very tedious, or again very rapid, and operative interference becomes more than usually necessary and frequent.

THE RAPID INSTRUMENTAL DILATATION OF THE OS UTERI. By DR. LEOPOLD ELLINGER, Stuttgart. (*Ibid.*, v. 2. 1873.)

IN contradistinction to the tedious, uncertain, and not unfrequently dangerous dilatation of the os and cervix uteri by sponge-tents, bougies, and laminaria, Dr. E. strongly advocates the use of the instrument devised and employed by himself, with which he rapidly, easily, and safely dilates the external and internal orifice of the uterine canal, and which he has found of great and surprising service in numerous cases requiring such instrumental interference. The instrument resembles a polypus-forceps, bent at an obtuse angle at 6 centimetres distance from the blunt point. By compressing the handles, the parallel branches open laterally to a width of 15 millimetres at the blunt points, and the amount of dilatation is measured by a graduated transverse rod attached to one of the handles. E. has used the instrument in a number of cases,* of which he reports ten, generally in office-patients, who left his office on foot immediately after the operation. The introduction of the dilatorium into the cavity of the uterus was seldom attended with any difficulty, and the use of the sound was thereby dispensed with. The pain attending the introduction and dilatation was never greater than that experienced during the passage of the ordinary uterine sound, and only in three instances did any unpleasant results follow the application, only one of which (in which E. yielded to the solicitations of the patient and dilated the strongly retroflected and adherent uterus) could in reality be attributed to the dilatation. The rapid, often instantaneous, relief afforded by the brisk dilatation of the external and internal os in cases of dysmenorrhœa, with or without flexion, attended with the general disturbance of the system so common in such cases; the comparative freedom from pain with which the next menstruation appeared; the diminution of the flow in menorrhagia, and of the secretion in chronic endometritis after repeated dilatation; the occurrence of conception, after the dilatation, in several cases of sterility, have, in conjunction with the facility of, and absence of pain and danger attending the operation, induced E. to discard sponge-tents,

* According to verbal communication to me, during the summer of 1872, in over twenty-five cases, with invariable satisfactory results.—P. F. M.

laminaria, and bilateral incision entirely, and restrict himself wholly to his dilatorium. He introduces it in the same manner as the sound, dilates slowly and gradually, generally at first not to the maximum of 15 millimetres, and by turning the points of the instrument laterally, distends the canal in all directions. The indication for its use are the following: 1. Narrowness of the cervical canal, with or without dysmenorrhœa, in virgins as well as married women. 2. Constriction of the uterine canal caused by deviation of the corpus uteri. 3. Metrorrhagia from various causes; the free discharge of the blood from the uterine cavity gives the organ a chance to contract. 4. Retention of catarrhal secretion. 5. The necessity of introducing the finger into the uterine cavity for the purpose of the diagnosis and removal of foreign substances (shreds of membrane, coagula, placental fragments) or tumors. 6. The difficult introduction of the sound. 7. The elevation of the flexed uterus. 8. Sterility caused by constriction of the cervical canal. Counter-indications there are none; the dilatorium may not always satisfy all expectations, but E. never had occasion to repent having used it.*

THE SHAPE OF THE CAVITY OF THE UTERUS. By DR. HAGEMANN, Hannover. (*Ibid.*, v. 2, 1873.)

IN order to obtain more accurate information as regards the exact shape and configuration of the uterine cavity, than is given by the various authors on the subject, H. injected a number of uteri, of different ages, with paraffine and a metallic compound (bismuth, lead, zinc, and cadmium), and studied the casts thus formed, which he describes as follows:

* Being personally well acquainted with Dr. Ellinger, I saw the instrument in his possession, and brought one with me to this country. During the last summer I have used it repeatedly in five cases of flexion of the uterus, and have seen no evil results, but almost always a marked relief after its application, consisting particularly in a temporary diminution or entire cessation of the lumbar, sacral, and abdominal pain, and general discomfort so commonly met with in flexions. In two cases of metrorrhagia, in consequence of retention of portions of the placenta after miscarriage in the third month, I easily dilated the external and internal os with the dilatorium sufficiently to enable me to introduce the index finger, and on the latter a polypus forceps or curette, with which I succeeded in removing the placental shreds and thus arresting the hemorrhage. No evil results whatever followed the dilatation.

In the October number of the *New York Medical Journal*, we find an article by Dr. William Ball, of Brooklyn, N. Y., on "Forcible and Rapid Dilatation of the Cervix Uteri, for the Cure of Dysmenorrhœa," in which the author describes a mode of treatment similar to that of Dr. Ellinger, with the additional use of a stem-pessary after dilatation. The priority of the treatment may be difficult to decide.—P. F. M.

Uterus of a new-born infant: Slight anteflexion, the angle at the internal os; cervical canal one-third of the whole cavity; both the transverse and longitudinal palmæ plicatæ extremely distinct; the cervical canal only slightly dilated at its middle; slight constriction at the internal os; the uterine cavity proper enlarges but little towards the fundus, where the anterior and posterior surfaces meet at a sharp angle and radiate towards the tubes; two distinct ridges extend towards the tubal orifices on the anterior and posterior surfaces; on the posterior surface there is a median furrow extending from the fundus to the internal os, and terminating in the left wall, whilst the furrow in the anterior wall goes to the right side.

Uterus of a nullipara: Cervical canal very long, about one half of the whole uterine cavity; external os, a distinct transverse fissure; the cervical canal dilates rapidly and becomes narrow again in proportion; in the centre of the anterior wall there is a longitudinal ridge, on the posterior wall there are two spherical depressions caused by ovula Nabothi; at the upper portion of the cervical canal several delicate folds; the cavity of the corpus uteri does not enlarge above the internal os, but loses its flat shape and becomes cylindrical, and flat again at the fundus, where it gradually dilates to thrice its size and spreads out into two wings at the tubal ostia; the breadth of the cavity here is thrice that at the internal os. At the fundus there is a slight concavity, with a protuberance in the centre, from which a ridge runs down to the internal os on both the anterior and posterior surfaces; there is a slight flexion at the os internum.

In another case, the cervical canal showed a slight anterior curvature at the external os, then enlarged rapidly in its course posteriorly, and becoming flat, proceeded in a perpendicular direction to the os internum; the palmæ plicatæ were distinctly visible on both the anterior and the posterior cervical wall.

Uterus of a unipara or multipara: The entrance to the cervical canal tolerably wide, no strict distinction between vaginal portion and cervix perceptible; the anterior and posterior walls of the cervical canal show more or less deep impressions, the borders are irregularly indented and ragged, there is no trace whatever of the palmæ plicatæ. The cervical canal, which occupies one half of the whole length of the uterus, gradually contracts, and measures only a few millimetres in diameter at the internal os; above it the cavity enlarges equably in an inwardly convex arch to the tubal orifices; the fundus likewise projects slightly into the cavity, which thus assumes the

shape of an isolateral triangle with concave borders and rounded angles. The right half of the cavity is somewhat longer and narrower than the left. The surface of the cast of uterine cavity, which here deserves that name much more than in the previous examples, is covered with numerous small depressions, caused by the protruding small uterine follicles.

Uterus of an old virgin: External orifice, and especially the internal os, very narrow; the cervical canal enlarged towards its centre, anteriorly hardly any folds, posteriorly they are still preserved in the lower portion; length of the cervical canal ⅓ths of the whole uterine cavity. The cavity of the body enlarges gradually, is almost entirely cylindrical, and suddenly dilates in the upper third, the walls are also convex inwards, the shape is that of a long triangle.

Uterus of an old multipara: External orifice and cervical canal very wide, the latter particularly in the transverse diameter; becoming slightly constricted at the internal os; folds but indistinct; the uterine cavity is three times as long as the cervical canal. In the lower portion there is a transverse ridge on the anterior wall, the right side of the cavity bulges out more than the left, the enlargement below the tubal orifices is quite sudden, and the fundus is convex inwards, thus giving the uterus an appearance similar to that of a uterus bicornis. The injection entered slightly into the tubes, thus showing that their orifices must have been patulous. In none of the other casts did this happen. The enlargement of the cavity was quite considerable, and equal in all directions, owing to senile involution or a slight degree of hydrometra accompanying it.

Puerperal Uterus: The physiological anteflexion of that period, the point of flexion at or immediately above the internal os. The posterior lip is imperceptible, the anterior well preserved, but the former condition may have been caused by the traction of the heavy anteflected corpus uteri. Cervical canal flat and broad, distinct plicæ on both the anterior and posterior walls, most prominent anteriorly on the left, posteriorly on the right side, the cessation of which plicæ indicates the hardly constricted internal os; from the latter point the lateral borders extend in a slightly curved line inwards up to the fundus, the left border shows a distinct excavation, and the left portion of the uterus is much larger, owing to the insertion of the placenta on that side, the site of which is still fissured and occupies almost the whole superior half of the posterior surface; owing to the retarded involution of the left side, caused by the insertion of the placenta there, the left tubal orifice is situated more anteriorly, the right more posteriorly. The an-

terior surface of the uterus is tolerably smooth, presenting only a few irregularities caused by the regeneration of the mucous membrane.

The illustrations of the casts, of course, greatly facilitate the comprehension of the several conditions described; still it will be noticed that the theories advanced by embryology as to the development of the uterus are substantiated by the above investigations; the longitudinal central ridge, and the impression in the middle of the fundus indicate the line of connection of the two ducts of Müller, which together form the uterus and vagina. This fœtal reminiscence was no longer visible in the multiparous and senile uteri. The large size of the cavity of the uterus in old age seems to be dependent on senile involution more than on preceding labors. The greatest width of the cervical canal is generally found at about the middle of that cavity. The width of the orifices of the uterus, particularly the external os, seems to be dependent only on preceding labors, not on senile involution.

THE CONVERSION OF A FACIAL INTO A VERTEX PRESENTATION BY EXTERNAL MANIPULATION ONLY. By FRIEDRICH SCHATZ, Rostock. (*Archiv für Gynäkologie*, v. 2. 1873.)

FORMERLY face and breech presentations were supposed to be pathological, and to call for active operative interference, in consequence of which much injury was done both to the mothers and the children. Since the profession have become acquainted with the fact that, as a rule, a child can be normally expelled with the face or breech presenting, without the least interference on the part of the accoucheur, the mortality in these cases has much diminished. Still we find that, notwithstanding the present expectant and rational treatment, the mortality of face and breech presentations is at least double that of vertex presentations (in breech presentations three per cent. of the mothers and twenty-two per cent. of the children, in face presentations six per cent. of the mothers and thirteen per cent. of the children die), and the after-effects for both mothers (particularly in face presentations) and children (particularly in breech presentations) are often of very serious import.

Acting on the principle that it is right and justifiable, prophylactically, to convert a normal presentation with a comparatively poor prognosis into one with a better prognosis, if this can be done without any serious inconvenience (a plan already adopted in breech presentations by means of external manipulation or Braxton Hicks' combined method, but abandoned in

face presentations on account of the difficulty of execution and want of success of the operation after labor has commenced. Schatz has, with his usual ingenuity, devised a method of changing a face into a vertex presentation, by external manipulation alone, during the first stage of labor, or even the last period of pregnancy, while the membranes are still intact and the os uteri undilated. The *modus operandi* is, briefly, as follows: 1. Between the pains the shoulder and thorax of the fœtus are grasped through the abdominal and uterine parietes and pushed first upwards and towards the side where the back of the fœtus is situated, and, as soon as the shoulder and thorax have been brought into the long fœtal axis, no longer upwards but only towards the dorsum of the child (*i.e.*, the lateral wall of the uterus). 2. In order not to push the whole body of the fœtus or the whole uterus in the direction last mentioned, the other hand must seize and hold the fundus uteri, and with it the breech of the child, in its former position, and even push it towards the side where, hitherto, the fœtal thorax was situated. This last action must not be antagonistic to the first upward motion, but should be parallel with the second impulse towards the lateral wall of the uterus, only in the opposite direction. As soon as the shoulders and thorax have thus been fairly lifted out of the pelvis, and the breech has then been pushed towards the side to which the thorax points, and the shoulders and thorax pushed simultaneously towards the opposite or dorsal side, 3. The second hand pushes the breech to the thoracic side and downwards, thus thrusting the occiput against the opposite brim of the pelvis and causing the head and face to approach the chest. Should the head be inclined to glide over the pelvic brim during this last manœuvre, the hand of an assistant or midwife will supply the necessary resistance, and no difficulty will be found in accomplishing the described rotation of the head on its transverse axis and producing a vertex presentation. S. has had occasion to practise this theoretically devised operation only in one instance, and was surprised at the ease, rapidity, and safety with which the change of presentation succeeded. To those who wish to employ it, he offers the following remarks:

1. Be well schooled in the diagnosis of pregnancy and the various fœtal positions, by external examination, and be gentle, careful, and skilful in your manipulations, so as not to excite uterine contraction. A practical obstetrical diagnostician knows how easily the different parts of the fœtus in utero can generally be felt by external examination at or near term, and how accurately we can thus often distinguish the breech, feet,

direction of the back, the forehead, and the thorax and anterior shoulder in a face presentation. A mistake in diagnosis, of course, frustrates the attempt to rectify the presentation..

2. The operation should at first be attempted only in supposedly easy cases, where the membranes are still intact, the head high and movable, the uterine and abdominal walls soft, thin, and impressible. The first stage of labor should be chosen, and the patient may be anæsthetized to facilitate the operation.

3. If the uterine walls should not grasp and retain the head with sufficient firmness to prevent the return of the face presentation, which, however, will usually be the case, the membranes may be ruptured, if the os be sufficiently dilated, or, if it be desirable to preserve the membranes, the woman may be placed on the side towards which the thorax of the child is directed. Ordinarily she should lie on her back.

4. Do not try the operation in a frontal presentation, for it will be unsuccessful, but strive to convert the frontal into a face presentation, by inserting the finger into the mouth and pulling down the chin.

5. Some face presentations cannot be reconverted into vertex presentations, for the reason that they have been caused and are preserved by the shortness of the umbilical cord, which is inserted into the placenta on the thoracic side of the fœtus, at about the middle third of the uterus, and has become wound around the neck of the child before labor, pulling on the latter during the descent of the head into the pelvis, and drawing the occiput towards the back of the child. In conclusion, in order to derive the full benefit from this and other external manipulations, as well as for their good generally, Schatz advises all pregnant women, especially primigravidæ, to consult a physician during the last portion of their pregnancy, and ascertain from him the position of the child, and the necessity, if present, of altering it before labor sets in. Many difficult operations and tedious confinements would thus be avoided.

On Pelvic Hæmatocele.* By Alfred Meadows, M.D., Lond., F.R.C.P., Physician-Accoucheur to St. Mary's Hospital, Lecturer on Midwifery at St. Mary's Hospital Medical School, Physician to the Hospital for Women. (*London Lancet*, 1873.)

As it is not possible for me in the time at my disposal to discuss the whole subject of pelvic hæmatocele, I propose to direct

* Paper read before the Harveian Society.

attention chiefly to its symptoms and treatment, and in regard to both of these I shall keep myself as closely as possible to the facts which I have observed in my own experience. For this reason I shall consider only that variety of the disease where the blood is effused into the peritoneal cavity; indeed I think it is better to limit the term *hæmatocele* to these cases, and to class under the head of *thrombus* those in which the blood is effused into the cellular tissue beneath the peritoneum. Such a classification is, I believe, in accordance with that adopted by surgeons in the case of the testicle, and it is, I think, a practically sound and convenient arrangement. I may say that I have never yet seen a case of the latter kind—viz., pelvic thrombus,—at least none in which I was able satisfactorily to diagnose that condition, nor have I ever met with it post-mortem. From my own experience, then, I have seen nothing to satisfy me that such a condition ever exists, nor do I very well see how it is to be diagnosed from ordinary cases of acute pelvic cellulitis of a limited kind. I certainly do not believe that cases of this subperitoneal variety ever give rise to any considerable swelling. I very much question the statement that blood effused in this way into the pelvic cellular tissue may strip up the peritoneum, and give rise to a large pelvic or abdominal swelling. On the contrary, I believe that all cases where the tumor is considerable are cases of true intra-peritoneal hæmatoceles: it is important to bear this in mind, because obviously it has a bearing upon the question of treatment, especially in its surgical aspect; at least I should have less hesitation in tapping a hæmatocele where I knew that the blood was effused and encysted in the peritoneal cavity than I should in puncturing a thrombus with the blood extravasated into the cellular tissue. The risk of mischief resulting is, I believe, far greater in the latter case than in the former. Such, at all events, is my experience in regard to tapping pelvic swellings.

Now, as to the trustworthy symptoms which will in general enable us to diagnose cases of true pelvic hæmatoceles, they are typically seen in the following case, which I have elsewhere recorded:—

Mrs. S——, aged thirty, married ten years, and has had two children, the youngest being three years of age, consulted me on November 14th, 1870, for a leucorrhœal discharge, which, she had been told, was due to an ulcer of the cervix uteri. On examination, I found that the uterus was large, measuring three inches in length; the mucous lining of the cervix was everted, and deeply injected, being what is called by some authorities in a state of granular erosion. All the culs-de-sac were entirely

free from any deposit whatever. On the day following she went out to dinner, and, although it was very cold and wet, she determined to walk in her light evening dress to the house she was going to visit, which was only a few doors off. Menstruation was about due at the time, but was frequently irregular, so that she could hardly be sure of the date. She had scarcely sat down to dinner when she was seized with severe pain in the hypogastric region, which compelled her to leave the room; and she was carried home, feeling very faint and ill. Some hot brandy-and-water was taken at once, and warm fomentations were applied. The pain, however, continued with but slight abatement, and the next day I was called in. On examining per vaginam, I found a swelling behind the uterus, stretching across from side to side, and pushing that viscus slightly forwards; it also bulged a little into the vagina. There was extreme pain and tenderness in the lump, and also on deep pressure into the pelvis from above. The swelling was somewhat elastic, but more boggy. On the following day the swelling had increased; there was more pain; pulse 120, tongue furred, expression anxious. Nothing could be felt externally. Next day there was still greater increase and bulging of the swelling per vaginam, which now invaded the left side of the pelvis, pushing the uterus against the right obturator foramen. The pain was not so severe, but differed in that it was of a forcing, bearing-down character. The lump was more distinctly elastic, and I had no doubt that it contained fluid. It had pushed Douglas's pouch so low down as to be quite near the vaginal outlet, and might have been tapped with great facility, either per vaginam or rectum. On the fourth day there was slight aggravation of all the symptoms, with a relative increase in the size of the swelling, which, however, could only be felt externally on pressing into the pelvis. It did not rise above the level of the pelvic brim. There was no obstruction either of the bladder or rectum, though the bowels acted with difficulty and great pain, and only after aperient medicine. During the course of the next ten days the symptoms greatly abated, the pain diminished, and the swelling grew less and less, so that on December 14th, just a month after the commencement of the attack, it was noted that "there is hardly a trace of the lump left; but a kind of ridge may be felt behind the uterus, forming, as it were, a cast of the peritoneal fold in that direction." Even that ultimately disappeared, and when I examined her early in February nothing abnormal was discoverable.

On the 15th of that month, it being a menstrual period, she again exposed herself to cold, and was seized in almost precisely

the same manner. I saw her the day after, and on examination I found that the uterus was depressed, pushed somewhat forwards and to the left side by a boggy, putty-like mass, which occupied the posterior and part of the right lateral cul-de sac. Defecation was difficult, and extremely painful. There was very slight sanguineous discharge from the vagina, and violent bearing-down pain, as if everything would force from her. The swelling at no time appeared to be larger than a good-sized orange. A few days subsequent to this, and after a good deal of forcing pain, she expelled a small mass, which, on examination, proved to be nothing more that a decolorized fibrinous clot, entangling a good deal of uterine epithelium. After this she felt great relief; the catamenial discharge came on much more freely; the post-uterine lump began to diminish in size; and she made a rapid and complete recovery, so that when I saw her a few months afterwards the uterus was quite movable; no deposit could be felt in either cul-de-sac, and nothing abnormal was discoverable.

Now it seldom falls to our lot to be able to demonstrate, as was done in this case, the rapid formation of a post-uterine swelling coincidently with the occurrence of symptoms of acute pelvic inflammation. It so happened that a few hours before the attack came on I had the opportunity of examining this lady, and was satisfied that no pelvic swelling existed. A similar examination, made a few hours after the attack set in, showed the existence of a soft, elastic tumor behind the uterus, filling up Douglas's pouch, and pushing the uterus forwards against the pubis. Now there is no swelling or tumor that I know of in connection with the female generative organs which can be formed so rapidly as this, except pelvic hæmatocele. This fact alone, therefore, was sufficient to warrant the diagnosis, and it was corroborated entirely by the accompanying symptoms. We cannot, however, reckon upon such opportunities as were afforded me in this case; and in the absence of that knowledge, our diagnosis will be founded partly upon the history of the case, and partly upon the character of the pelvic swelling.

As regards history, I find that in all the cases which have come under my care there has been a more or less distinct history of uterine or ovarian trouble, which has, as it were, led up to and culminated in the attack which now claims attention. This is more particularly observed in those cases where the hæmatocele is not directly and immediately connected with menstruation. In the majority of cases there is this connection, and the hæmatocele results either from the regurgitation of the menstrual fluid from the uterus along the Fallopian tube into

the peritoneal cavity, or else the afflux of blood which usually takes place to the generative organs at the time of menstruation leads to such an engorgement of the venous plexuses that rupture occurs at some point where either a varicose or other diseased condition existed, which predisposed to the catastrophe. In a certain number of cases—but they are, in my experience, very rare—the hemorrhage occurs in connection with pregnancy, or rather with delivery, either at term or, more commonly, prematurely, and especially during the earlier months. Probably in these cases the diseased condition, whatever it be, which gives rise to the hæmatocele after the abortion is the principal agent in bringing about the premature expulsion of the ovum. And here also careful inquiry will serve to elucidate the fact insisted upon —viz., the existence of symptoms of uterine or ovarian disease prior to the occurrence of pelvic hæmatocele. Indeed, I do not think it possible for such an accident, if I may so call it, to occur in a woman perfectly healthy in those parts. Happily for the patient, though unfortunately for science, these cases seldom end fatally, and our opportunities, therefore, of examining the parts and of demonstrating the origin of the mischief are few and far between. I believe that a varicose condition of the veins of the pampiniform plexus, resembling varicocele in the male, is of very common occurrence, and may have much to do with the disease we are considering. All this, of course, has reference only to antecedent history and to predisposing causes.

The symptoms which characterize the attack itself are generally very well marked, and although in themselves it would, perhaps, be difficult in some cases to distinguish them absolutely from those which occur in certain acute pelvic inflammations, such as cellulitis or peritonitis, yet in general there are important differences which, taken in connection with a digital vaginal examination of the resulting pelvic swelling, are sufficiently characteristic to make the diagnosis a matter of tolerable certainty.

Probably the only conditions with which pelvic hæmatocele is likely to be confounded are pelvic cellulitis and pelvic peritonitis; but in regard to each of these there are some few points of dissimilarity in the character of the symptoms, and there are still greater differences in the local physical signs, especially in regard to the formation of the pelvic swelling, its situation, consistence, and general characters.

In all three, when fully developed, there are the usual signs of inflammatory action—namely, local pain and general febrile disturbance. To some extent they resemble one another in the mode of attack, but though each may begin rather suddenly,

the symptoms of cellulitis and peritonitis are seldom so severe at first as hæmatocele; the pain of cellulitis is not nearly so sharp as that of the other two, and hæmatocele is generally the most severe of all. Faintness, great prostration, and even collapse to an alarming extent, frequently accompany the accession of hæmatocele; neither of these occurs in connection with cellulitis or peritonitis. On the whole, it may be said that, taking average cases of these three affections, pelvic hæmatocele is characterized by symptoms which are more sudden, severe, and alarming than either of the other two—it, in fact, shows its traumatic character very distinctly; and pain, prostration or collapse, with symptoms of internal hemorrhage, are its leading features. The pain is of course very local and limited, and it has a peculiar forcing, bearing-down character, a feeling which is described sometimes as if everything were being forced away.

With the occurrence of such symptoms, a vaginal examination will in general suffice to make the diagnosis clear. If circumstances have enabled us, as in the case already detailed, to demonstrate the sudden formation of a pelvic swelling, situate chiefly in the post-uterine region, that may be taken as conclusive evidence of hæmatocele; for not only does the swelling in cellulitis form much more slowly, but it differs also in situation and character. It is at first neither in front of nor behind the uterus, but on one side, originating as it does in the cellular tissue of one or other broad ligament. In pelvic peritonitis the swelling forms even still more slowly, is generally behind the uterus—not on one side—and more limited in extent than either of the other two.

Again, there are differences in the character of the swelling. In hæmatocele it is at first tense, elastic, fluid, and fluctuating; as time goes on, it becomes boggy, doughy, non-fluctuating; then firmer and firmer, till it is almost hard, and with this change it contracts considerably, getting smaller and smaller, till it finally disappears. Cellulitis, on the contrary, is small at first, and gradually increases in size, becoming softer and more elastic as it increases. It sometimes changes its brawny character for one in which fluctuation can be distinctly made out. In all these respects it resembles pelvic peritonitis, and so far both differ from pelvic hæmatocele; but they in their turn differ from one another in this respect, that in cellulitis the swelling is one-sided, while in peritonitis it is situate either anteriorly or posteriorly.

Lastly, in cellulitis the uterus is usually displaced laterally, being pushed to one side by the swelling formed in the broad ligament of the opposite side; while in hæmatocele and in pel-

vic peritonitis the uterus is displaced forwards or backwards, but most commonly forwards, and much more so in hæmatocele than in peritonitis.

Such are the characteristics of the pelvic swelling in these three conditions. Their differences are in general sufficiently marked to enable us to diagnose them with tolerable certainty, especially when taken in connection with the history and symptoms past and present. Neither the history nor the physical signs taken separately are in themselves sufficient to establish the diagnosis. Both must be taken together; but a minute and careful examination is of the utmost importance, not only for the purpose of diagnosis, but still more in reference to treatment, and especially in regard to that mode of treatment which I believe to be the best and most successful. I have a strong impression that if the symptoms and physical signs of pelvic hæmatocele were more generally understood and appreciated, we should find that cases of this affection are more common than is generally supposed, and that it is not such a medical curiosity as some imagine. Cases of pelvic cellulitis, pelvic peritonitis, and pelvic hæmatocele have no doubt just sufficient in common to make an error of diagnosis pardonable; but I would venture to hope that mistakes of this kind may be less common in the future as the disease becomes better understood.

As regards *treatment*, those who are content to follow a purely expectant method, and who, as it were, wait upon Nature in her efforts to repair the disaster, will not be very uneasy if they fail to diagnose with exactness the true condition of affairs. They may think that between these three diseases there is not very much to choose in a therapeutical point of view, and that therefore precision of diagnosis is a matter of little value, interesting only to the specialist, but possessing no practical importance to the busy practitioner.

On every account such laxity is, in my opinion, much to be deprecated; and from the therapeutical point of view at which I regard these cases, such carelessness is not only mischievous, but may be absolutely fatal. For the relief which we are able to afford is prompt and effectual. But in order that it may be employed with safety and success, it is absolutely essential that the diagnosis be strictly correct. If otherwise, then it is not only possible, but probable, that the remedy which is intended to save life will have the contrary effect; for although the three diseases I have mentioned bear a certain external resemblance, and have some symptoms in common, they are yet essentially different, and irreparable mischief may ensue if what I

believe is the right mode of treatment for the one is wrongly applied to the others.

Suppose, then, that a case of the kind I have described occurs, the first thing to be done undoubtedly is to enjoin absolute rest, and to administer opium in moderate doses; bearing in mind that we have two objects in view in the treatment of cases of this kind. The *first* is to obtain the coagulation of the effused blood, and its encystment in the space within which it is effused; the latter process is accomplished partly by inflammatory action in the shape of limited peritonitis, and partly by coagulation. Our *second* object is to get the entire mass removed; and this may be done either by absorption or by tapping, or both. My own experience and the records of numerous cases lead me to believe that the process of coagulation takes place circumferentially—that is to say, the fibrin collects all round the effused mass, above, below, and on either side; while the serum, together with some blood-cells and coloring matter, is, as it were, enclosed or encysted within. My belief on this point is founded on the fact that in cases which I have tapped I have sometimes had to thrust in the trocar a distance of one and even two inches, showing that there was coagulation at bottom, while the same fact is suggested, as regards the upper part, by observing that after a good deal of fluid has been withdrawn, a considerable swelling has sometimes been felt, though, of course, much less than before.

This point is of great importance, I think, in reference to the question of surgical interference which I am now advocating.

Rest and opium are, I believe, sufficient to secure the coagulation of the escaped blood; possibly it may be favored by the application of ice within and without; and this may also be useful in limiting or controlling the internal hemorrhage. It would probably not be a fitting remedy in a case connected with menstruation. It is uncertain how long this process of circumferential coagulation is being effected; and it varies, no doubt, with the extent of the effusion. For obvious reasons it is very undesirable that any surgical interference should be resorted to until coagulation has taken place.

On the Dangers of Dentition. By James Finlayson, M.D., Fellow of the Faculty of Physicians and Surgeons, Glasgow; Assistant to Prof. Gairdner's Medical Clinique; and formerly House-Surgeon to the Manchester Clinical Hospital and Dispensary for Children. (*Obstetrical Journal of Great Britain and Ireland.* October, 1873.)

I. *Introductory: Various Estimates of the Dangers of Dentition.*—The question as to the relation which the process of

teething bears to infantile disease is of practical as well as scientific importance. If "there is scarcely any affection we do not meet with in one case or other of difficult dentition," * it must lie at the very root of the study of the diseases of children. If, on the other hand, "there never is and never has been, since the world began, any such disease," † the other view must stand very much in the way of all true diagnosis. Nor is it merely diagnosis that is involved—treatment must also vary; and so we find that the operation of lancing the gums is regarded by one as "an all-important remedy," and that he recommends us to "lance the gums *freely* and *deeply* over the greater part of their extent, *daily* or *even twice a day*;" ‡ while another, "convinced from experience of its futility," has "avoided making it a source of revenue." § Such statements represent the two extremes, and nearly all intermediate degrees of opinion may be found to exist among ourselves at the present time.

It has appeared to me, from personal observation, that exaggerated and superstitious ideas regarding the potency of dentition as a cause of disease, are injurious to the study of this branch of medicine, and no less pernicious in their practical operation in the treatment of children. As, however, such opinions prevail in the profession as well as amongst the public, it was thought that an investigation of the doctrine of teething at different times and in different countries, might throw some light on current ideas. If it serve no other purpose it may at least help the reader to feel that amidst such contradictory statements it is safer to trust to his own experience and observation than to follow blindly any traditions, even although they may be the latest. It may act also as a wholesome corrective to the estimate of our present controversies and of our latest and most favorite hobbies (whatever they are) to find them compared with others which, after lasting for centuries, may now serve only to excite a smile. Nor should it be forgotten that the matter does not concern an obscure disease, the recognition or identification of which may have varied from time to time: the process of dentition is one requiring no great skill for the observation of its external manifestations; the experience

* Joseph Fox, "The Natural History of the Human Teeth." London, 1803. P. 77.

† Selby Norton, M.D., "Transactions of the Obstetrical Society of London," vol. xi., for 1869. Paper on "Teething," p. 183.

‡ Marshall Hall, M.D., "On the Diseases and Derangements of the Nervous System." London, 1841. P. 188. (The italics are in the original.)

§ Dr. Hudson, quoted by Robert Blake. "De dentium formatione." Edinb., 1798. P. 141.

obtained centuries ago is fairly comparable with that of the present time. The ideas and superstitions, however, regarding this obvious process have varied in a remarkable manner. As the recognition of definite diseases has been rendered easier by the advance of science and by the introduction of new methods of research, the realm of teething as a cause of disease has tended to be narrowed. Specialists have found but little room in their studies for the operation of such a universal cause of disorder, and, if we except the revival which the doctrine of reflex nervous irritation gave to the subject of teething, the tendency has been to relegate to its influence only those affections which are more than usually obscure in their etiology.

The amount of mortality and disease due to dentition has been variously estimated—a variation which is perpetuated to the present time, as will be shown while discussing our own bills of mortality.* Berdmore† estimates that one-half of the deaths under two years may be attributed to teething; another estimate‡ gives one-third. Stoll§ thought that of those who had a difficult dentition one-third perished. A sixth part of children have been supposed by French authors‖ to die from this cause. Arbuthnot¶ estimates the mortality at one-tenth. Harris** states that among the fatal diseases of children none give rise to so many grave symptoms as difficult dentition. Andry†† says that in a great number of families most part of the children die of teething. Underwood‡‡ thinks that it induces disease more especially in the healthy and robust; while Hurlock§§ can only announce, as a faint consolation, that a painful and grievous dentition is not to be expected as a certain and infallible event in every child.

* See Section II. of this paper.

† Thomas Berdmore, "A Treatise on the Disorders and Deformities of the Teeth and Gums." London, 1770. P. 193.

‡ "A Treatise on the Diseases of Infants and Children." London, 1772. P. 75.

§ Maxim. Stoll, "Prælectiones." Vindobonæ, 1788. Tom. i. p. 246 et seq.

‖ M. Baumes, "Traité de la Première Dentition et des Maladies souvent très graves qui en dépendent." Paris, 1806. P. 101. M. Murat, Art. "Dentition," "Dict. des Sciences Médicales." Paris, 1814. Tom. viii. p. 414.

¶ John Arbuthnot, M.D., "Nature of Ailments and Practical Rules of Diet." 2d Edition. London, 1732. P. 408.

** Gualterus Harris, "De morbis acutis Infantum." Lond., 1689. P. 93.

†† M. Andry, "Orthopædia, or the Art of Correcting and Preventing Deformities in Children." Translated from the French. London, 1743. Vol. ii. p. 159.

‡‡ M. Underwood, "Treatise on the Diseases of Children." Edited by S. Merriman. London, 1827. P. 280.

§§ Joseph Hurlock, "A Practical Treatise upon Dentition." London, 1742. P. 14.

With all these melancholy anticipations of death and disease, with the suffering, irritability, and anxiety attendant on them, it might well have passed into a proverb that parents had no pleasure in their children till the process of teething had passed its worst.* Proverbs, however, are usually one-sided, and so we find that a very different, if not opposite, estimate has been made of the perils of teething. Marshall Hall, from his great carefulness in watching the process and his promptitude and energy in using the gum lancet, takes credit that he never had a death from dentition; an exactly similar claim, however, has been made by one who boasts that he leaves the diagnosis of "dental fever" to mothers, and seldom resorts to the scarification of the gums.†

Indeed, while some writers seem to see in the local process of dentition an event fraught with danger to the general health and the whole economy of the child, others have regarded the irregularities and peculiarities of dentition rather as manifestations of the general condition of the infant, and have looked upon most of the disasters overtaking infants during the teething period as due to faulty management, to bad nutrition, or to some defect in their own constitution or in that of their nurses, when they were not to be regarded in the light of simple coincidences. The relationship existing between the quality of the milk and the earliness—and so presumably the facility—of dentition has been referred to by Aristotle‡ in two separate passages, and so it is probable that it was never altogether lost sight of by subsequent writers.§

The phenomena of dentition, however, are so striking, and the importance of the teeth for the future life of the infant so obvious, that we need not wonder that great weight was attached to the local process.

Some indication of the importance thus attached to it in

* "In proverbio enim dici solet:—Donec ab oculis non sunt editi dentes, de filiis genitores non sunt gaudentes. Omnibonus Ferrraius: De arte medica infantium libri quatuor." Brixiæ, 1598. Lib. 3, p. 121. D. Sennertus also says: "Adest autem dolor maximus cum canini erumpunt unde etiam vulgatum est—Parentibus non esse gaudendum de liberis donec hi dentes erumpunt." Opera. Lugdini, 1650. Tom. ii., lib. ii., pars i., cap. xi.

† A. Jacobi, "Dentition and its Derangements." New York, 1862. See pages 170 and 129.

‡ "Aristotelis De Hist. Animalium," lib. vii. cap. x.: "Denique omnes maturius dentiunt quorum nutrices lac habent calidius." "De Generatione Animalium." Lib. v. cap. viii.: "Lactis autem usus ipse nihil confert, quamquam lactis calor faciat ut dentes ii oriantur. Judicium est quod et ipsorum lactentium infantes qui calidiores utuntur lacte, ocyus dentiunt. Calor enim vim obtinet agendi."

§ Aristotle is referred to by Mercurialis, Sennertus, and Primerosius in this connection.

ancient times may be seen in the practice of not burning the bodies of those who died before the epoch of dentition,* and in Christian times some special significance seems to have been attached to the teeth as being the seeds of the future resurrection body.†

But important as the local process of dentition no doubt was, some physicians began to see that it was but one of a multitude of changes occurring simultaneously in the history of the child, and that many morbid phenomena popularly ascribed to teething could with greater propriety be referred to the other systems more directly concerned.‡ Billard§ refers the attacks of diarrhœa so common in children during the teething period, to the development of the intestinal follicles, and of the other parts of the digestive system occurring at this epoch. He likewise points out that important changes take place in the brain of the child during the first year of its existence, and he maintains that the frequency of cerebral affections at that age ought to be attributed to these changes; this period, however, is the same as that of the appearance of the first few teeth, and as the changes in the mouth are much more obvious than those in the brain, they have received the credit of producing the convulsive and other cerebral disorders of infancy. Doubts, indeed, as to convulsions and other infantile diseases being due to teething, could not fail to arise in a critical mind. Guersent,‖ after narrating a case in point, admits that many errors must have been made in referring to dentition convulsions really due to cerebral disease.

De Haen¶ gives two instances of convulsions, which, at first obscure, were cleared up by stripping the children. In the *one* case a pin was found sticking in the skin; in the other case a

* Pliny's "Nat. Hist.," lib. 7, cap. 16, Holland's Translation. Tom. i. p. 164. Lond., 1634.

† See Tertullian (Clark's translation), "De resurrectione," cap. xli. This passage is referred to be by several medical writers—*e.g.*, J. Riolanus, "Opera cum physica tum medica." Franc., 1611. P. 475.

‡ J. E. Liebich, "De dentitione difficili." Berol., 1819. "Dentitio vero non pro locali processu sed pro evolutione universali est habenda," p. 22. "Ex hac demum evolutione universali phænomena morbosa quæ dentitionis morbificæ nomine comprehendi solent; satis lucenter deduci possunt," p. 27. Barthez et Rilliet, "Traité Clinique et Pratique des Maladies des Enfants." 2e Édition. Paris, 1853. "C'est au développement prépondérant de l'appareil folliculaire gastro-intestinal, c'est à l'accroissement rapide du système encéphalo-rachidien et à son activité fonctionelle qu'il faut attribuer une partie des phénomènes pathologiques de la dentition." Tom. i. p. 220.

§ C. M. Billard, "Traité des Maladies des Enfants Nouveau-nés et à la Mammelle." 2e Édition. Paris, 1833. Pp. 402 and 601–602.

‖ M. Guersent, Article "Dentition," "Dictionnaire de Médecine" (en 30 tomes). Paris, 1835. Tome x. p. 133.

¶ Ant. De Haen, "Prælectiones in Hermanni Boerhaave Institutiones Pathologicas." Viennæ, 1780. Tom. i. p. 531 (§ 234).

mercurial preparation had been applied by the nurse to the foot of the infant. The latter case must have been all the more suggestive of dentition, in that salivation was a marked symptom, and if the attention had been concentrated on the mouth, no doubt the disease might have been plausibly referred to it. Armstrong * seems to have had some doubts about referring the convulsions of children during the period of dentition to this cause, alleging that convulsions occurred before and after the usual periods of cutting the teeth, and that these were of the same character as those which happened during the process.

But from what age may symptoms fairly be referred to dentition? The earlier authors † seem to have contented themselves with regarding the date at which the teeth usually appear as the date also of the symptoms referrible to this cause; in this view the seventh month may be named. Soranus ‡ suggests that means of mollifying the gums may be commenced about the fifth month, so as to anticipate the dangers of the seventh. But physicians could not forget that symptoms almost precisely the same as those usually attributed to teething were frequently observed before the time for the appearance of the teeth had arrived, and that these symptoms, at whatever age, frequently appeared and subsided without any fresh tooth coming to the surface.§ To account for such cases the theory was started that the first set of symptoms might be due to the deeper processes of teething‖—"to the opening of the jaw by the tooth;" ¶ and the second set to the piercing of the gums. This double set of dangers for every one of the twenty milk teeth affords sufficient scope for the physician to set down any illness he may please during this period, as coincident with and dependent on the

* George Armstrong, M.D., "An Account of the Diseases most Incident to Children." New Edition. London, 1783. P. 76.

† Galen, Kühn's Edition. Vol. xvii., pt. ii., p. 629. "Paulus Ægineta," Sydenham Society's Translation. London, 1844. Book i. sect. 9. "Aetius Tetrab." i. serm. iiii. c. ix. "Oribasius Synopseos," lib. v. c. ix.

‡ "Sorani Ephesii Liber de muliebribus affectionibus. Recensuit et Latine interpretatus est Franciscus." Z. Ermerins. Traj. ad Rh. 1869. Cap. xl. (This chapter is supposed to be the work of a later writer.)

§ "Chaque jour dans la pratique, on peut s'assurer que la sortie d'une dent ne succède pas toujours à cette série de symptômes. Fréquemment il arrive que l'orage s'apaise sans que la cause pour laquelle il s'était élevé ait disparu, et l'on voit ainsi se reproduire à plusieurs reprises tous les phénomènes morbides avant que la dent ait franchi l'obstacle qui s'oppose à son sortie." Barthez et Rilliet, "Traité des Maladies des Enfants." 2e Édition. Paris, 1853. Tome i. p. 218.

‖ "Duplex est dentitionis tempus, infantibus molestum: unum quo dens maxillari primum emergere nititur," &c. Harris, "De morbis acutis infantum." Lond., 1689. P. 95.

¶ Sydenham, Sydenham Society's Translation. Lond., 1848. Vol. ii. p. 374.

process of dentition. Accordingly we find that one writer is convinced of the error of waiting till the sixth month before attributing infantile diseases to teething;* another authority begins to suspect teething as the cause of illness after the child has reached his fourth month;† a third somewhat arbitrarily assigns the date of birth as the beginning of the troubles of dentition;‡ while a fourth states somewhat vaguely that dentition "is a disease of early age, and indeed almost begins with life."‡ It is rather surprising that no writer (so far as I have noticed) has sought to connect distinctly congenital disorders, such as club-foot, with the development of the fetal teeth. It is evident that to date teething from birth, as Marshall Hall§ seems to do, is very arbitrary, and the congenital club-foot may surely with as much reason be referred to the irritation of teeth as the similar deformity which results from the so-called "dental paralysis" affecting young children. While such an innocent-looking thing as the growth of the hair of the *fetus in utero* has been supposed potent enough to induce sickness in the pregnant mother,‖ it seems hard to deny to the process of fetal dentition any share in the abundant disorders of the fetus itself.

With an available range of time extending almost from the beginning of life up to the completion of dentition, it is evident that it must depend very much on the preconceptions of the physician as to which, if any, of the numerous ailments of infancy he is entitled to refer to teething. Some, indeed, have sought to substitute for this process other causes nearly equally universal, and they have not found it difficult to refer to them a multitude of diseases usually attributed to dentition. Dr. Ballard¶ finds in the various forms of fruitless sucking a

* B. W. Richardson, "On the Medical History and Treatment of Diseases of the Teeth and the Adjacent Structures." Lond., 1860. P. 127.

† Nicholas Rosen von Rosenstein, "The Diseases of Children." Translated into English. London, 1776. "As soon as a child arrives at the age of four months and becomes indisposed we generally suspect its indisposition is occasioned by its teeth." P. 21.

‡ Marshall Hall, "On the Convulsive Affections of Infants, and especially Laryngismus." London Medical Society, May 17, 1847. (Reprint.) "Dentition, as I understand the term, begins at birth," p. 18.

§ John Hunter, Works, edited by Palmer. London, 1835, vol. ii. p. 105. Hunter probably referred to birth in the passage quoted.

‖ "because the Child's haire is bred and grown great which some hold to be partly a cause of this sickness. Plinie writes that women with Child feel themselves worse when their Child's haire begins to come and chiefly about the new of the Moone." "Happy Deliverie of Women." By James Guillemeau. London, 1612. P. 37.

¶ Thomas Ballard, "A New and Rational Explanation of the Diseases Peculiar to Infants and Mothers." London, 1860. "I am not aware that [fruitless] sucking has ever before been regarded as a cause of infantile disease; but if it had, I have no doubt that it would long ago have taken the place of

potent cause of infantile derangement, and it takes the place of dentition so efficiently that he can make no room for this process in the nosology. Dr. Norton, at the Obstetrical Society, likewise contended that teething ought to be expunged from our list of disorders, and he regarded the evils usually ascribed to dentition as "due to the universal but unphysiological practice of feeding infants on starch food." * These two ideas have at least the merit of basing their pathology of infantile disease on some departure from the normal or physiological process of nutrition, and if some departure be thus implied, some hope of averting the dangers may confidently be entertained. But there is reason to fear that it is precisely from its fatalistic tendency† that the doctrine of teething as a cause of disease is so popular on all hands. If a child die from "its teeth," as is said, it is regarded as having succumbed in the course of a necessary process for which neither parents nor nurse can be in any way blamed; and if the doctor have scarified the gums or done whatever is popular at the time, he too can join in the self-satisfied lament as if over an inevitable catastrophe.

But even among those who do not readily wish to acknowledge every illness during the teething period as due to this process, two sets of symptoms deserve special consideration: those which from their local nature seem directly related to the teeth, and those which either occur or subside about the time of the appearance of a given tooth.

There is a general agreement regarding the possibility of obviously local inflammations being due to dentition,‡ but it is seldom that these can be regarded as so serious as to give rise of themselves to general constitutional disturbance.§ Even

teething, that bugbear of anxious mothers and the nursery!" P. 25. Again: "I have observed and reflected very carefully upon this subject, and have seldom or never been able to satisfy myself that any illness depended upon the development or evolution of the teeth." P. 24.

* Selby Norton, M.D., paper on Teething, "Transactions of Obstetrical Society of London," vol. xi. London, 1870. See also, in this connection, Dr. C. H. F. Routh, "Infant Feeding." London, 1868.

† A. Jacobi, M.D., "Dentition and its Derangements." New York, 1862. "I once read the newspaper announcement of the death of a child, in which the parents, while inviting all their friends and acquaintances to attend the funeral, affirmed that 'the Lord hauled the dear child up to heaven by the teeth.' Now in this case neither the father nor mother was at fault." pp. 6–7.

‡ This is admitted even by those who may be regarded as holding extreme views. See Jacobi, "Dentition and its Derangements." New York, 1862, p. 139; and Wm. Cadogan, M.D., "Essay upon Nursing and the Management of Children." Fourth Edition. London, 1750, p. 35.

§ "Il est possible que l'inflammation gingivale produit par l'éruption dentaire soit assez prononcée pour causer la sècheresse de la bouche, la rougeur générale de la membrane muqueuse de cette cavité, tous les caractères, en un

local inflammatory changes, however, must be referred with caution to the presence of the protruding tooth. Billard narrates two observations * in children a few days old, and a third in a child who had cut the whole of the first teeth,† which serve as a warning against too readily attributing inflammation in the gums of an infant to the process of dentition.

With regard to the symptoms of an illness actually concurring with the visible protrusion of the teeth, the possibility of a mere accidental coincidence must be carefully considered, and with so many teeth to account for we must be prepared to find some of the numerous ailments of infancy concurring in point of time with the appearance of some of the twenty teeth. Rilliet and Barthez ‡ speak of having seen a difficult dentition concurring so exactly with the development of meningitis, that they were at first at a loss to know whether the illness were due to a single or a double cause. They also warn us against too readily regarding the gravity of an illness during the teething period, or even concurring with the teething process, as being due to this fact. They testify to having seen one or several teeth piercing the gum during the course of meningitis, pneumonia, enteritis, and typhoid fever, without difficulty, and equally without any favorable modification of the course of the illness.

This leads us to the consideration of the other phenomenon already referred to, which is perhaps even more striking to the popular mind—the more or less sudden subsidence of symptoms about the time of the appearance of a tooth. It must be remembered that although the distinguished authorities just quoted refer to cases in which teething went on in the midst of grave disease, this is not a usual occurrence; the common event is the cutting of a tooth *after* an illness which may with great propriety be regarded as having arrested its progress; and this of course may lead to the erroneous notion of the illness

mot, de la stomatite érythémateuse accompagnée de fièvre, d'agitation, de cris continuels; mais il faut convenir que cela n'arrive pas le plus communément." Billard, "Traité des Maladies des Enfants nouveau-nés et à la Mammelle. 2e Édition." Paris, 1833. P. 269. J. Hunter, Works, edited by Palmer. London, 1835. Vol. ii., p. 107, "The local inflammation is not great."

* "Obs. xv.: M. D., âgée de 6 jours. Tuméfaction de la gencive épanchement de sang dans les alvéoles. Obs. xvi.: A. G., âgée de 20 jours. Muguet, congestion sanguine et destruction des gencives, toux suffocante, gastrite."

† Billard, Op. cit., p. 269.

‡ Barthez et Rilliet, "Traité Clinique et Pratique des Maladies des Enfants." 2e Édition. Paris, 1853. Tome i., p. 219–220.

having been due to the struggles of the tooth to reach the surface.*

The cases in which certain symptoms recur with the cutting of every tooth, without any other obvious cause, constitute by far the strongest argument in favor of their depending on dentition,† and when such an occurrence is well marked and carefully observed, it is not easy to overcome the force of its persuasion.‡ Nor, indeed, is it the object of the present paper to deny that any illness is caused by teething. Its purpose will be served if the reader be kept from attributing too much to dentition, remembering that this is not the only source of infantile disorders during the teething period, and searching carefully for other causes, before the illness is referred to a physiological process.

A Case of Hæmophilia by the Umbilical Cord. (*Algér. Médical and Obstet. Jour. Great Britain and Ireland*, Sept., 1873.)

This case was observed by Dr. Marcailhou in the person of an infant (a boy) seven days old, in whom the separation of the umbilicus determined a hemorrhage. When called to the case, Dr. Marcailhou observed extensive ecchymoses of recent date under the *axillæ*, below the breasts, and on the arms and shoulders, and diagnosed hæmophilia. The navel formed a tumor of the size of a hazel-nut, with an opening in the middle which gave exit to a quantity of blood. The bleeding was only arrested after four hours by means of lint soaked in eau de Pagliari.

The next day the temperature was notably lowered; the breast was given to the child, but with the first movements of suction the bleeding recommenced, and, as it was impossible to stop it, the child died an hour after. In the night it had two bloody stools, and chocolate-colored matters were vomited.

On rubbing the articular surfaces, rough crepitation was heard, which could only be attributed to the effusion of blood into the articular capsules. The scrotum and thighs shortly after death presented subcutaneous sanguineous tumors. There was a general icteric tint shortly before death, which was more

* Jacobi, "Dentition and its Derangements." New York, 1862. "During convalescence the tooth cuts. . . . You say the child cut a tooth after it was well enough. She (the mother) says it got well after it cut a tooth." P. 172.

† P. Bouchut. "Traité Pratique des Maladies des Nouveau-nés des Enfants à la mammelle et de la seconde Enfance." Paris, 1867. P. 456. Trousseau, "Clinique Médicale." Paris, 1862.

‡ Dr. B. W. Richardson gives an unusual case, in which boils appeared with each tooth. "Medical History and Treatment of Diseases of the Teeth." London, 1860. P. 135.

pronounced afterwards. There was no evidence of hereditariness of hæmophilia.

ALBUMINURIC ECLAMPSIA AND URÆMIA; CURE BY HYDRATE OF CHLORAL. By M. BOUCHUT. (*Gazette des Hôpitaux*, June 19, 1873.)

DISCUSSING the theories, he sustains the opinion originally emitted by him that in encephalopathic albuminuria there is cerebral and meningeal œdema which causes eclampsia. He objects to the honor of this theory being attributed to Traube, and claims it for France. He says that eclampsic albuminuria may be caused (1) by serous effusion of the meninges of the brain; and (2) by uræmic or ammoniæmic poisoning through secretory insufficience of the kidneys.

Details of the case of a child are given. The patient presented the following symptoms: Anasarca, ascites, œdema of the lungs and of retina, as shown by ophthalmoscopic, or, as Bouchut calls it, cerebroscopic examination. Presumably, therefore, the meninges were not free from œdema, the connection between the optic nerve and the pia mater having been shown by Axel Key, of Stockholm. The diagnosis was therefore cerebral œdema. This view was supported by the facts that the child had neither vomiting nor diarrhœa, that the mouth remained moist without smokiness, and that the temperature was about normal.

Dr. Bouchut then passes in review the several theories of writers on the subject, and inclines to subscribe to the views of Dr. Bourneville, who has distinctly shown that there is an uræmic eclampsia and a simple eclampsia; that in the first there is always a marked lowering of temperature, whilst in the second there is an equally marked elevation of temperature.

As regards treatment, the fundamental indication was serous depletion, and this might be carried out by means of drastics, bleeding, or sweating. M. Bouchut chose the last, believing it attacked at once both the anasarca and albuminuria. Milk diet was given, and gallic acid was administered. But for the eclampsia itself Dr. Bouchut ordered hydrate of chloral, of which he has a high opinion as a preventive of attacks.

CONVULSIONS IN AN INFANT, DUE TO ABUSE OF ALCOHOL IN THE NURSE. By M. VERNAY. (*Lyon Médical*, 1873.)

THE author relates a very striking case of the mischievous consequences which may result from the abuse of wine-drink-

ing in a nurse. A child was taken with convulsions, and during five days all sorts of means, like calomel, bromide of potassium, the hot bath, musk, belladonna, etc., were uselessly employed. M. Vernay was eventually told that the nurse drank six to eight glasses of French wine in the day, and had some more at night. It occurred to him that the convulsions in the child might be due to the quantity of alcoholic liquid thus absorbed by the nurse. The wine was ordered to be stopped, and the convulsions ceased immediately after.

NOCTURNAL INCONTINENCE OF URINE CURED BY CHLORAL HYDRATE. (*London Lancet*, Sept., 1873.)

DR. GIROLEMO LEONARDI has recorded in *Raccoglitore Medico* five other cases of the above, in which the use of a solution of chloral hydrate was entirely successful. The patients were all aged eight to ten, and the disease had resisted various means which had been previously employed. In all the cases the cure was effected most promptly, and was permanent. The dose was from seven to fifteen grains in about an ounce and a half or two ounces of water, taken at once or in two doses. In some cases the very first dose was successful, in others five doses were necessary to effect the cure. The drug was administered in the evening, two hours at least after food, and Dr. Leonardi strongly recommends that the patient should drink as little water as possible.

ON THE PATHOLOGICAL ANATOMY OF INFANTILE PARALYSIS. By DR. DAMASCHINO. (*Gaz. delle Cliniche—Gaz. Med. Lomb.*, 52. 1872. *Ibid.*)

IN three cases the following condition of the spinal cord was found:

1. Small atrophic spots of softening in the sinus of the cellular elements of the anterior cornua of the spinal cord.

2. Sclerosis in the white substance of the lateral columns, atrophy of the nerve-tubules and their axis-cylinders, which spreads to the anterior roots.

3. Granular degeneration of the walls of the intermedullary capillaries and congestion of the vessels.

These changes were found in various intensity throughout the whole extent of the spinal cord.

PLEURITIS IN CHILDHOOD AND THORACOCENTESIS. By H. ROGER. (*L'Union Méd.*, 85, 86, 88, 90. 1872. *Ibid.*)

ROGER gives the following rules for the treatment of purulent

pleurisy (empyema), and the following indications for thoracocentesis:

1. In acute cases, with very profuse effusion and persistent bad symptoms, puncture should be performed, first with the capillary trocar and then with the aspirator as soon as empyema can be diagnosticated.

If the effusion returns slowly, and in less degree, the same operation may be repeated; if the return is rapid, however, the external fistula should be immediately made, and a short metal canula be introduced.

Drainage is to be employed only in older children, and by experienced operators.

The pleural cavity should be washed out through the canula; if suitable, medicated solutions (tincture of iodine, decoction of bark, etc.) may be used.

When the purulent discharge has diminished to about a tablespoonful in the twenty-four hours, and only an equally small quantity of fluid can be injected, the canula should be removed and the fistula will soon close.

2. The treatment of chronic empyema is similar to that just mentioned.

3. If spontaneous perforation into the bronchi have occurred, but the general symptoms do not disappear, the discharge of the pus is impeded or pyopneumothorax comes on, the fistula should be made in the same manner by puncture, or incision if the pleural contents are thick.

4. Tubercular pleurisy is no contra-indication, especially as its diagnosis is uncertain; at all events the patient will be relieved by the operation. Hydrothorax in a child can never be an indication for thoracocentesis.

In case of a fibro-serous effusion in articular rheumatism, thoracocentesis is to be performed only for an indicatio vitalis; paracentesis of the pericardium may be oftener necessary.

The termination of simple, serous, acute pleurisy in childhood is generally recovery, absorption being more rapid than in adults, and death more rare, even in pleurisy of the left side; consequently thoracocentesis is to be performed only in case of absolute necessity.

In chronic pleurisy, if the effusion is abundant and remains constant for 6 to 8 weeks, it will generally have become purulent, and thoracocentesis will be indicated.

The thought that a simple pleuritic effusion *might* be changed to a purulent one by puncture, will deter us from unnecessarily opening the pleural cavity in such cases.

CONTRIBUTION TO THE NOSOGENY OF INFANTILE PARALYSIS. By DR. CARL KÈTLI, Pesth. (*Ibid.*, p. 139–143).

THE peculiar form of paralysis not unfrequently occurring in children has usually been considered as dependent on some degeneration of the central organs, the brain or spinal cord. Pathological investigations have not, however, shown sufficient cause for this assumption, and other researches, the most recent of which are by Elischer, in Pesth, and Bouchut, in Paris, lead us to believe the paralysis to be of local origin. Elischer examined the muscles of children with paralysis who had died from intercurrent variola, and found that they had undergone a fatty and a colloid degeneration; the contractile substance was atrophied and did not fill the sarcolemma; the striated muscular fibres contained 3–4 granular nuclei and 2–3 or more nucleoli, instead of one. Prof. Schenthauer examined the spinal cords of these children, but could not detect the least pathological changes. Volkmann, Broca, Duchenne, and Von Lobstein confirm this muscular atrophy. Bouchut calls infantile paralysis a rheumatic-granular, fatty, muscular paralysis. The muscles of the affected limbs atrophy very soon after the beginning of the disease; they soon lose their power of contraction through faradization (as soon as the second week), whilst the constant current still excites them for months, and will even (Bouchut) produce a cure in the beginning of the disease. In paralysis from central disease there is no emaciation of the paralyzed limbs for many months, but very often defective action of the bladder and genital organs, which is never observed in infantile paralysis. Taking all the symptoms and the anatomical condition, as well as the results of treatment, together, Kètli coincides with Bouchut in believing infantile paralysis to be not a central disease, but a peripheral, idiopathic affection of the muscles, dependent on a fatty degeneration and atrophy of the muscular fibrillæ, and diminution of the contractile substance.

REVIEWS AND NOTICES OF BOOKS.

THE PUERPERAL DISEASES. CLINICAL LECTURES DELIVERED AT BELLEVUE HOSPITAL. By FORDYCE BARKER, M.D., Clinical Professor of Midwifery and the Diseases of Women in the Bellevue Hospital Medical College; Obstetric Physician to Bellevue Hospital, etc. New York: D. Appleton & Co. 1874. Pp. 526.

THESE "Clinical Lectures" are the result of over twenty years' experience, the value of which any one enjoying the pleasure of personally knowing their distinguished and genial author, or acquainted with the name of Fordyce Barker, will readily appreciate. While Hervieux and Winckel have within the last few years attempted to supply the want felt in French and German medical literature of a book on the pathology of the puerperal state, no work treating solely of this condition has appeared in the English language, and the need of it has been so much felt that, about a year ago, a translation of Winckel's book was prepared, the publication of which was frustrated by the accidental loss of the whole manuscript.* Dr. Barker's book thus is the first and only English work in existence which treats solely of the diseases incident to the puerperal state. That it does so on the latest practical and scientific basis need hardly be mentioned; the book is in every way what one would expect from a physician with the reputation of its author.

Being "clinical," as a rule more mention is made of the really practically valuable points of each class of affections, than of the minutiæ of historical and scientific research; the latter are only hinted at when necessary. Exceptions are made in favor of various affections, the nature of which is still uncertain or the subject of discussion, such as puerperal convulsions, and albuminuria, phlegmasia dolens, puerperal peritonitis, septicæmia and pyæmia, and puerperal fever, the chapters on which contain much that is new, interesting, and original. With customary candor the author does not leave us in doubt as to his opinions on any subject, but frankly expresses his convictions, however much they may clash with those of others, or his inability to arrive at a definite conclusion, if such be the case.

Although we cannot expect to do full justice to the book in

* This fact was communicated to us in a letter by Prof. Winckel himself.

a mere review such as the space at our disposal allows, we will endeavor to give a short outline of the various chapters, specifying those points in which the author differs from his contemporaries.

Lecture I. *Puerperal Convalescence.*—This chapter contains, among other things, a very good and eminently practical account of that common occurrence, secondary hemorrhage.

Lec. II. *Diet of Puerperal Women—Hemorrhoids.*—The practice of restricting the diet of the puerpera during the first few days after confinement is condemned, and the rule adopted to "give the puerperal woman as good nutritious food as she has an appetite for, and can easily digest and assimilate." Most nurses, and many physicians, we are afraid, will not agree with this very sensible and rational advice.

The habit of dosing puerperal women with castor-oil is likewise disapproved of. Dr. B. very rarely gives oil, as it is disagreeable to take, and very liable in predisposed persons to produce piles. If a laxative be needed, which is not always the case, an enema of soap and water is better than any medicine given by the mouth.

In opposition to the view generally entertained, Dr. B. strongly recommends, and always uses, aloes, in combination with other drugs, such as opium, hyoscyamus, or iron, for the relief and even cure of hemorrhoids, on the ground that the special property of aloes is "to excite the muscular contractility of the colon and rectum," and "to stimulate the venous system of the abdomen, and especially of the pelvis," and reports very satisfactory results from this treatment.

Lec. III. *Laceration of the Perinæum.*—Dr. B. thinks that "support of the perinæum," in order to prevent laceration, is an unfortunate expression, and that the application of the hand to the perinæum in the last stage of labor, in order to be of service, should be intelligently done by a person conversant with the mechanism of labor, and that then, "by aiding extension of the head in occipito-anterior and flexion of the head in occipito-posterior positions," and "in some cases by directing the force of the uterus from the perinæum toward the vulva, and in others in counteracting the too violent effects of the uterus," lacerations may be prevented or much diminished in extent. "The use of the forceps may, in occipito-posterior deliveries, in some face-presentations, and in those cases of vertex-presentation where there is excessive flexion of the head, and the sacrum has a less curvature than is normal, be absolutely necessary to prevent laceration."

The method of managing the perinæum suggested by Dr.

Goodell, of Philadelphia, and quoted and approved by Dr. Barker, is almost identical in principle with that used in the Vienna Lying-in Wards.

Dr. B.'s practice to "deliver the woman lying on her back whenever there is danger to the perinæum," is in direct variance with the advice and reasoning of Schroeder in his "Manual of Midwifery," page 93 of the translation.

LEC. IV. *Thrombus of the Vulva and Vagina.*—The prevalent notion that this accident is almost always a consequence of varicose veins, is pronounced erroneous; and, indeed, the opinion hinted at, that varicosity of the vulvar and vaginal veins is a prophylactic against thrombus. The use of the vaginal tampon, after the birth of the child, in order to arrest the growth of the thrombus, is considered bad practice, external pressure and styptics being sufficient and much more rational treatment.

LEC. V. *Puerperal albuminuria* is not considered by any means to be always dependent upon, or identical with, Bright's disease or uræmia, but may be caused by any condition which induces a temporary venous congestion of the kidneys, such as the pressure of the gravid uterus, the effects of external cold, "convulsions, the various phlegmasiæ incident to the puerperal condition, the pyæmic diathesis, septic absorption, and puerperal fever," in all of which conditions the albuminuria is in reality the effect, and not, as has often been supposed, the cause of the pathological phenomena. By removing the cause we therefore find the albumen gradually totally vanishing from the urine, and œdema, irritability, loss of sight, convulsions, etc., improving and disappearing almost without further treatment.

Dr. Barker does not mention the observations of Olshausen, of Halle, who has found that puerperal albuminuria is occasionally caused by catarrhal and interstitial purulent nephritis.

The therapeutical indications are, "To relieve the hyperæmic or congested kidneys, to prevent the impoverishment of the blood resulting from albuminuria, to prevent the nervous disturbances which terminate in paralysis, or often culminate in convulsions, and finally, if it must be, to induce premature labor."

LECS. VI. and VII. *Puerperal Convulsions.*—Dr. B. reviews the theories of Frerichs, Rosenstein-Traube, Hicks, Carl Braun, Frankenhaeuser, which he considers sufficient in explanation of a large number of cases of eclampsia, but which do not account for those frequent cases of puerperal convulsions in which no lesion of the kidneys can be detected or is present, nor for those in which albuminuria existed during pregnancy, and still no convulsions occurred, nor for those in which no albuminuria

existed when convulsions occurred, and the urine was then found filled with albumen. For these three classes of cases we must find other explanations. "Have we not some reason for believing that both the convulsions and the albuminuria are the effect of some common cause, the exact nature of which science has not determined?" Leaving the nature of the exciting agent in the blood which produces the convulsions undetermined, Dr. B. goes on to state the predisposing causes of eclampsia, viz., albuminuria, hydræmia, anæmia, uræmia, primiparity, hereditary nervous temperament, and occasionally atmospheric influence.

The exciting causes are, during gestation, "indigestion, constipation, retention of urine, excessive distention of the uterus, reflex pains, moral shocks;" during labor, in addition, everything which makes pain severe, pressure of the head on the cervix, rigidity of the soft parts, digital examination, all the varieties of distocia; after labor, "those causes which labor has developed, as the accumulation of urea in the blood during labor, cerebral or renal congestions, the sudden changes in the circulation following the removal of long-continued pressure on the great abdominal vessels, exhaustion of nerve-power and moral disturbances; in fact, "in highly nervous temperaments, and in the very impressible nervous systems of those suffering from anæmia, albuminuria, or uræmia, anything which produces direct or indirect irritation of any part of the nervous system, may bring on convulsions."

Treatment.—Above all, prophylaxis, if possible. "In most cases where any of the predisposing causes that I have mentioned are discovered sufficiently early, they may be successfully treated, and convulsions will occur only in a small percentage." The removal of renal congestion, the cure of uræmia, a nutritious diet, moderate exercise in the open air, the relief of local congestions—uterine, renal, and cerebral—are all prophylactic measures against puerperal convulsions; a last resource is the induction of premature labor. During the convulsions, venesection, if admissible, a hydragogue cathartic and the inhalation of chloroform (which remedy rather diminishes cerebral congestion by removing the spasmodic muscular contractions) until the attack is overcome, and in order to allay nervous irritability and the return of the eclampsia, morphia hypodermically; "uræmia does not contraindicate the use of this agent." Chloral-hydrate has not been as efficacious in Dr. B.'s experience as he had hoped.

The artificial termination of the labor is, of course, advisable, if it can be done without injury. In Dr. B.'s opinion, chloroform is *the* great remedy in puerperal convulsions.

Lec. VIII. *Lactation.*—With proper prophylactical mea-

sures, such as are now almost universally adopted (by applying the child as soon as possible, emptying the distended breasts etc.), the occurrence of milk-fever can be, and now is, almost entirely prevented.

LEC. IX. *Mastitis and Mammary Abscess.*—Epidemic influence is mentioned as one of the occasional predisposing causes.

Mammary Neuralgia is described, at the end of the lecture, as preventing lactation. Dr. B. has met with a few cases in which the pain of nursing was so intense, although no disease of nipple or breast could be detected, that it had to be abandoned. Quinine in full doses removed the trouble.

LEC. X. *Puerperal Mania.*—Dr. B. estimates "the ratio of puerperal mania to the whole number of cases of labor in Bellevue Hospital to be 1 in 80."

The wonderful contrast to the number occurring in hospitals in other parts of the world (Scanzoni, Würzburg, 5 cases out of 7,438, that is 1 in 1,487) he attributes to the greater moral influence and the greater susceptibility to emotional causes in the women in this country, who are obliged to hide their shame in a hospital, and feel the disgrace much more than is the case in Germany, for instance, where, among the lower classes, it is considered a perfectly legitimate business for young girls to become pregnant, to qualify themselves for the position of wet-nurse, and earn some money. (From personal observation during several years, while occupying a position well calculated to give us a thorough insight into the intellectual and moral status of the average laboring class in Germany, viz., as house-physician to the Lying-in Hospital in Würzburg, and as assistant to Scanzoni, we can fully endorse every word said by Dr. Barker on this subject.—*Rev.*) There are several kinds of insanity associated with the various phases of child-bearing: the insanity of pregnancy, the delirium of labor, the insanity of lactation, and puerperal mania proper.

"Moral emotions are the great exciting cause of puerperal mania." . . . "Since 1855 I have seen thirteen cases of puerperal mania in the wives of physicians; all but one were primiparæ." These ladies had read enough in their husbands' books to fill their minds with apprehension as to the horrors which might be in store for them, and thus developed cerebral disturbances, etc. As a hypnotic, the chloral-hydrate in doses of ten to fifteen grains, frequently repeated, is of great service in puerperal mania.

LEC. XI. *Relaxation of the Pelvic Symphyses.*—Contrary to the view expressed by Scanzoni, Dr. B. believes this accident to occur mostly in capacious pelves, to be due principally to

an excess of the physiological infiltration and relaxation of the tissues of the symphyses during pregnancy, and to have no necessary relation with the process of labor. After the subsidence of the possibly accompanying inflammation, a pelvic bandage, similar to a hernia truss, should be worn for a lengthened period.

LEC. XII. *Phlegmasia Dolens.*—According to Dr. B., in some cases the swelling begins at the lower part of the leg, and advances upwards; in others exactly the reverse is true. The temperature of the affected leg does not seem greater than that of the sound limb. The pathology of the affection, and the various theories of Dewees, Davis, Robert Lee, Hervieux, Simpson, Mackenzie, Tilbury Fox, and others, are discussed at length, and the conclusion finally arrived at that, "while we know that phlegmasia dolens occurs in the puerperal state, and in association with diseases which cause inopexia (tendency to coagulation of fibrine. *Vogel*), and that its most uniform autopsical lesion is venous thrombosis, we are still as ignorant of its real pathological nature as we are of that of rheumatism and many other diseases." It is not crural phlebitis, although it may occur together with the latter, but either may occur alone.

LEC. XIII. *Puerperal Thrombosis and Embolism.*—There are various kinds: arterial thrombosis, thrombosis and embolism of the pulmonary arteries and of the right cavities of the heart, and cerebral embolism. The two latter are more common than the former. As a predisposing cause we must again regard the hyperinosis and inopexia peculiar to the later months of gestation. A number of cases of sudden death after confinement, the cause of which was formerly obscure, must be attributed to cardiac and pulmonary thrombosis and embolism. "The causes of thrombosis of the pulmonary artery are: (*a.*) An embolus from a clot in a peripheral vein. (*b.*) Spontaneous, arising from the same condition of the blood (hyperinosis and inopexia) as causes thrombosis in the veins. (*c.*) Such lesion of the parenchyma of the lungs as arrests the current of the blood through the smaller branches of the pulmonary artery. (*d.*) Arteritis, which is exceedingly rare." The most characteristic symptom is the difficulty in breathing, respiration being suddenly increased to forty or fifty a minute; the pulse is small and weak, the face cold and livid, and the expression that of unutterable anguish. The immediate treatment consists in opiates and alcoholic stimulants. We particularly commend this chapter for the accurate and lucid manner in which those frequently imperfectly described or entirely omitted rare and interesting puerperal accidents are treated; as a rule we find them mentioned only in the latest surgical text-books.

Lec. XIV. *Puerperal Phlebitis.*—This disease, while it generally occurs as a secondary lesion of puerperal fever, and then may also affect the veins of other portions of the body, may also occasionally occur as a primary uncomplicated affection under the form of uterine phlebitis. More frequently is uterine phlebitis found as a primary lesion complicated with peritonitis or metritis. The differential diagnosis between primary uncomplicated uterine phlebitis and peritonitis is not easy. In uterine phlebitis the pain is chiefly confined to the lateral portions of the uterus, the repeated chills are not attended with a new access of pain, the sensibilities rather become more dull; in peritonitis the pain is severe whenever there is inflamed peritonæum, the chills are each attended by a progress in the local disease, besides, there is more or less tympanites; in both diseases the sensorium is overcast, innervation enfeebled. The danger of septic infection is very great. The treatment consists in allaying vascular excitement, nervous irritation, tonics and stimulants, and the most scrupulous cleanliness by means of frequent antiseptic injections. The excellent effects in this affection of veratrum viride, combined with brandy, in bringing down the pulse, are mentioned, the brandy appearing to increase the efficacy of the veratrum.

Lec. XV. *Puerperal Metritis.*—This is a very common complication of puerperal fever, and frequently accompanies peritonitis or uterine phlebitis; occasionally it occurs idiopathically, and then commences as endometritis, which gradually spreads to the parenchyma of the organ. If the inflammation continues long enough, the connective tissue becomes suffused with pus, breaks down, and abscesses of greater or less size are formed. The always-accompanying endometritis may reach such dimensions as to change the uterine mucous membrane into a discolored, pulpy, putrid, excessively fœtid mass, which imparts its odor to the discharges. The causes are: imprudence, traumatic lesions, and principally puerperal toxæmia.

The prognosis of the cases attributable to the latter cause is generally unfavorable, that of the former better, although the tedious affection "chronic metritis," or "areolar hyperplasia," is very liable to be the consequence.

The symptoms are pain in the hypogastrium, uterus larger than it should be at that time, lochia diminished or suppressed, or a return or positive increase of the discharge, quick pulse, and fever. The treatment: laxatives, saline sedatives and refrigerants, turpentine stupe to the abdomen, opium, quinine, and stimulants, and last, but not least, vaginal and uterine antiseptic injections.

LEC. XVI. *Puerperal peritonitis* is not synonymous with puerperal fever, for the former may occur primarily, occasionally as general peritonitis, more frequently local in the uterine region, and becoming general by propagation. It is, however, most commonly met with as one of the lesions of puerperal fever. It may occur independently of any lesion of contiguous organs, but "it is generally associated with some inflammation, either of the uterus, the ovaries, the Fallopian tubes, or the broad ligaments, or some suppuration that explains the peritoneal inflammation." Exposure to cold may be considered an occasional exciting cause. When primary, it attacks puerperal women within three days after delivery, sometimes its precursors are visible during labor. The attack is always ushered in by a chill, which is repeated with each successive fresh increase of the peritonitis. The diagnosis of an uncomplicated case of peritonitis should not be difficult, therefore we will not enter further into Dr. Barker's elaborate account of the symptoms, progress, and differential diagnosis. The treatment consists in: 1, opium; 2, veratrum viride; 3, turpentine stupes to the abdomen; 4, quinine; 5, alcoholic stimulants; 6, vaginal injections, and rest. Purgatives are contraindicated, except in obstinate vomiting, when ten grains of calomel, well rubbed up with twenty grains of the bicarbonate of soda, will produce fluid discharges and generally relieve the vomiting. Any further use of mercurials is not founded on reason. Venesection may exceptionally be beneficial in a very full habit.

LEC. XVII. *Pelvic Peritonitis and Pelvic Cellulitis.*—These two affections originate from various imprudences, from metritis, especially endometritis and phlebitis, and not unfrequently from a certain epidemic influence observable during epidemics of puerperal fever.

Dr. Barker does not mention a circumstance which has attracted our attention in most of the cases we have seen, viz.: that the cellulitis, if unilateral only, is, as a rule, found on the side corresponding to the position of the fœtal occiput during the delivery, that is, on the left side in first, and on the right side in second, positions. We have heard Scanzoni, Braun, Spaeth, and, we believe, Mathews Duncan, confirm this observation, which doubtless is owing to the greater pressure on, and distention of, the soft parts of the pelvis by the broad and firm fœtal occiput.

LEC. XVIII. *Puerperal Septicæmia and Pyæmia.*—This and the following two lectures on "Puerperal Fever" are the last and truly crowning chapters of the book. In these Professor Barker reviews and comments upon the theories and opinions

of the leading obstetricians and pathologists of past years and the present time, discusses the subject with a thoroughness and ability indicative of the deep thought which he has given it, and in many essential points materially differs from the generally accepted views.

Our limits will not, of course, allow us to specify all these various theories; all we can attempt to do is to mention the views held by Dr. Barker, leaving to our readers the task of discovering wherein they differ from those of other prominent scientists. Dr. Barker entirely dissents from the opinion expressed by Schroeder, that the mother cannot be infected by a dead fœtus, if the access of air has been prevented, that is, if the membranes have not been ruptured and the waters discharged; and, in proof of the correctness of his statements, quotes two cases in point from his own practice. "There are two sources of infection: one within the individual, or auto-infection the other, hetero-infection, the poison coming from without, the septic materials being absorbed by the surface of a recent wound, either by direct contact or from particles in the air. . . I do not believe that traumatism is a necessary antecedent of auto-infection. Whether this be the case or not for hetero-infection is not yet determined," etc.; "the symptoms of septicæmia will vary according to the amount of the poison absorbed and the consequent intensity of the disease. It may be so intense as to destroy life in a few days, or so mild as only to excite a moderate degree of fever for a few days, and then all disturbance of the system disappears. In other cases the symptoms may continue for days or weeks, and then terminate in either recovery or death." The fever always present in septicæmia is due to the chemical changes produced by the poison, to an acceleration of the molecular metamorphosis of the blood and tissues. A single chill occasionally ushers in the disease. The elevation of temperature is constant, 100° to 107°; a rapid fall of temperature is often noticed towards the fatal termination. Dr. B. has never witnessed the marked rise of temperature, immediately after death, mentioned by some writers. The sensibilities are dull, there is usually more or less wild delirium, frequently diarrhœa, vomiting in severe cases; the skin is usually dry and flabby in the later stages. These symptoms of septicæmia are in puerperal cases often marked with puerperal fever, phlebitis, etc. The autopsical lesions are principally a dark, fluid condition of the blood, and a softened, congested state of the visceral organs. There are no thrombi, no metastatic abscesses, there is no phlebitis, as in pyæmia. The treatment consists in thorough disinfection by vaginal injections,

and great cleanliness as regards the bed- and body-linen; stimulants, tonics, quinine, chlorate of potash, the tincture of the chloride of iron in convalescence. Measures calculated to produce elimination of the toxic elements are not recommended by Dr. B., because "the disease is the consequence of a poison which has already produced its effects," and eliminative remedies would only serve to increase the weakness of an already debilitated system and rob it of the power necessary to regain its strength. For a similar reason the veratrum viride is not to be used.

Pyæmia.—Chills always occur, and are repeated at regular intervals, indicating a new invasion of pus in the blood; the brain-power is exhausted, the patient becomes stupid, incoherent; diarrhœa is only occasionally present, the skin is of a leaden yellow hue (in septicæmia the cheeks are flushed). Pyæmia rarely begins in the first week after delivery; septicæmia generally does, and when fatal, is of much shorter duration than pyæmia. Pathologically, it is a purulent infection of the blood, which may also occur without antecedent traumatism. The traumatism, in fact, becomes dangerous only when some antecedent morbid condition of the blood, due to epidemic influence or special toxæmia, is present.

Metastatic abscesses in all parts of the body, due to capillary embolism, are a characteristic of the later stages of pyæmia. Dr. B. does not regard puerperal pyæmia, as such, a very fatal disease as some other writers, since he has seen several cases of recovery; but thinks that septicæmic pyæmia and pericarditis or endocarditis, with puerperal pyæmia, are exceedingly fatal.

The treatment is: quinine and alcohol, both in large doses; later the chlorate of potash and the tincture of the chloride of iron; surgical measures as regards the abscesses as they become necessary.

Lecs. XIX. and XX. *Puerperal Fever.*—Dr. Barker, with admirable clearness and lucidity, enumerates and describes the various doctrines advocated at the present time. 1. The doctrine of the local origin of the puerperal inflammation, followed by secondary fever and general symptoms (Meigs, Alonzo Clark, Cazeaux, Trousseau, Velpeau, Béhier, and other French authors, in England only Robert Lee); 2. The doctrine of traumatism and septicæmia, septic infection from a fresh wound (D'Espine, Spiegelberg, who supports a combination of this and the localist theory, Schroeder); 3. The doctrine that puerperal fever is an essential fever, primarily a blood-disease, developed by epidemic, endemic, and contagious causes, in which the local lesions are the result of the disease and not the

cause (Guerard, Dubois, Depaul, Danyau, Lorain, Fornier, Monneret, Tilbury Fox, Evory Kennedy, McClintock); 4. The doctrine which includes "under the term puerperal fever all the zymotic diseases, such as typhus fever, scarlet fever, erysipelas, diphtheria, hospital gangrene, septicæmia, and all of the severe primary inflammations when they occur in a puerperal woman" (Tyler Smith, Barnes, Hicks, Davis, Hewitt, Playfair, Scanzoni); 5. The theory of Martin of Berlin, "that the diphtheritic process in the genitals of lying-in women is the only essential element of the puerperal fever;" 6. The doctrine of Hervieux, who "believes that there is a plurality of puerperal diseases, as numerous as the local lesions, each of a distinct character, but developed by, and taking their special type from, what he terms *puerperal poison*, a miasm of lying-in hospitals, which, like the miasm of camps, and like the miasm of the surgical wards of a hospital, can engender numerous and very different diseases."

All these doctrines having been subjected to an able and tolerably exhaustive review and discussion by Dr. Barker, and the main propositions denied and refuted, with what success we must leave the readers of the book to judge for themselves, since the arguments used and examples cited are too numerous and lengthy to permit our reproducing them here, the pathological portion of the subject closes with the following "confession of faith" by Dr. Barker, which seems to us to be, in a measure, a combination of doctrines 3 and 4 mentioned above:

1. There is a fever which is peculiar to puerperal women, and is, therefore, appropriately named puerperal fever.

2. The symptoms of this disease are essential, and are not the consequence of any local lesions, and it is as much a distinct disease as typhus fever, typhoid fever, or relapsing fever.

3. It belongs to the class of zymotic diseases, and results from some unknown blood-changes.

4. We are as ignorant of the specific cause of these blood-changes as we are of those which develop relapsing fever, scarlet fever, or any of the other essential fevers.

5. The determining cause of this fever may be either epidemic influences, contagion, infection, or, probably, nosocomial malaria.

6. Any of the local inflammations may occur in the puerperal woman without puerperal fever; and, on the other hand, puerperal fever may be so severe as to destroy life without sufficient local disease to account for the symptoms or explain the cause of death.

7. The specific causes which develop the exanthemata, such

as scarlet fever and small-pox, may develop the specific disease with intense malignancy in the puerperal woman; but this does not transform the disease into a puerperal fever.

8. Septicæmia may be developed in a puerperal woman, either from autogenetic and heterogenetic infection, without puerperal fever, but this infection may also complicate puerperal fever.

These various propositions are the result of the acute observation and deep thought of many years of active practice, and of a thorough acquaintance with the literature of the subject. While here and there agreeing with portions of the six chief doctrines quoted above, they will again be found to differ from them in various material points, as the non-identity of septicæmia and puerperal fever, the undoubted contagiousness of the latter disease, its essential zymotic nature, etc.

Puerperal fever is thus stated to be a specific zymotic blood-disease, peculiar to the puerperal state, which is contagious and infectious, liable to spread epidemically, the nature of the blood-changes in which is unknown, and which is different from, and not identical with, any other disease.

"There are no pathognomonic symptoms of any of the essential diseases, with the exception of the exanthemata. Puerperal fever, like typhus fever, typhoid fever, relapsing fever, and all the essential diseases, is only known by a general combination of phenomena; nor is the presence or absence of any one symptom sufficient to determine the existence or non-existence of the disease."

"Epidemic influences seem to determine the special character of the secondary lesions, and, of course, the symptoms which attend these lesions."

The treatment consists in veratrum viride, opium, quinine, mineral acids, sponging and other antipyretics, stimulants, and nutrition. The eliminative treatment, by venesection, purgatives, emetics, and diuretics, has, in Dr. B.'s opinion, been proved to be of no practical utility, but, as in the instance of purgatives, positively injurious. The sulphites have been extensively tried by Dr. B., but without finding any satisfactory evidence of their efficacy in puerperal fever.

A number of cases from the obstetric service in Bellevue Hospital, and private practice, illustrate and complete the description of each disease.

While we are well conscious that we have not been able to more than imperfectly review Dr. Barker's excellent work, and that we have been compelled to touch lightly on many subjects which deserved much more careful mention, we hope that

we have been successful in pointing out the majority of the principal items of interest, and particularly in calling attention to the views peculiar to the author. No general practitioner, and certainly no specialist, should be without the book; it will supply whatever information he needs on the subject it treats of, and besides, by the terse and decided manner in which facts are expressed, save him both time and trouble. P. F. M.

A MANUAL OF MIDWIFERY: Including the Pathology of Pregnancy, and the Puerperal State. By Dr. KARL SCHROEDER, Professor of Midwifery and Director of the Lying-in Institution in the University of Erlangen. Translated into English from the Third German Edition, by CHARLES H. CARTER, B.A., M.D., B. S. Lond., M. R. C. Physicians, London, etc. With 26 engravings on wood. New York: D. Appleton & Co., 1873, pp. 388.

THOSE members of the profession who are acquainted with the German language and the medical literature of the past few years, need not be told how high a rank Schroeder's Manual holds among the text-books on Obstetrics, and how it is justly considered not only the most compact and at the same time comparatively most comprehensive, but also the most scientific, of all modern works on the subject. It is, therefore, with unqualified satisfaction that we greet this for some time expected translation, which, until an original English book worthily supplants it, supplies a void in our medical literature undoubtedly felt by every medical man, whether he be still a student, or already in a busy general or special practice. While not wasting time and space by the enumeration of exploded or more or less unfounded theories, Schroeder is careful to mention all facts or suppositions likely to prove useful or interesting to the reader, and thereby, and by the brief historical review usually accompanying, and the list of authors and articles appended to, each chapter, makes his book serviceable as a book of reference also to the advanced specialist and obstetrical author. We cannot help expressing our admiration for the skill of the author in bringing so much information and so many of the latest discoveries into so small a compass, and arranging them in a practical and scientific manner without waste of words and space. This book is therefore one of those, every word of which is valuable; it is as yet the only treatise on modern physiological obstetrics, of which there is still so little known, and will, we hope, aid in delivering our

noble specialty from the imputation under which it still frequently rests of being mere empiricism, and not guided by well defined physiological and pathological rules like most other branches of medical science.

It is, of course, impossible for us to more than briefly notice some various salient points of interest and importance. In the chapter on the physiology of pregnancy, we find necessarily brief mention made of the very latest researches and discoveries published in the medical journals of the last few years, such as the minute structure of the placenta, the nature of placental respiration, the causes of the various fœtal presentations, the changes in the maternal body generally, the condition of the cervix uteri during pregnancy, etc.

In the chapter on "The Physiology of Parturition" we find the cause of the setting-in of labor explained as follows: As pregnancy advances a fatty degeneration of the decidua takes place (which reaches its climax at the end of the tenth lunar month), whereby the organic connection between the ovum and the uterus gradually becomes solved, and the ovum acts as a foreign body and irritates the terminal fibres of the motor-nerve of the uterus, the sympathetic; when this irritation has reached a certain degree, a corresponding reflex action, in the form of a contraction of the uterine muscular fibres, takes place, which contraction is repeated as soon as the requisite sum of irritation is again obtained; and this rotation continues, each successive contraction being intensified by the separation of the ovum from the uterine wall, and therefore stronger and more rapid, until the expulsion of the ovum takes place.

The peristaltic nature of the uterine contraction is admitted as possible, but practically it is thought best to consider it simultaneous; the fibres of the cervix being much weaker and less dense than those of the body or fundus, it is evident that a simultaneous contraction of the latter, whereby the ovum is pressed against the opening of the womb, will gradually overcome the resistance of the circular fibres of the cervix, dilate the latter, and expel the ovum. The force of the uterus during parturition varies in different individuals. According to Schatz, the pressure which the "tonus" of the uterine and abdominal muscles exerts upon the uterine contents amounts to 5 centimetres of mercury. This pressure remains the same in the intervals between the pains, and rises only in the intervals when the muscles of the contracting uterus begin to thicken after a part of the fœtus has been expelled from the uterus, and particularly during the pains, when Schatz has found it to amount to 80–250 millimetres.

Parturition is divided into three stages:

1. The stage of dilatation of the os uteri; 2. The stage of expulsion; 3. The stage of the after-birth.

The classification of the presentations is exceedingly simple:

I. The longitudinal { 1. Cephalic end { a. Head / b. Face } presentation ; 2. Pelvic end { a. Breech / b. Footling } presentation

II. The transverse.

Each of these presentations is then divided into a *first*, of more frequent occurrence according as the occiput, forehead, back, and shoulder respectively point to the left side of the mother, and into a *second*, according as the parts mentioned point to the right side.

The two forces which effect the expulsion of the fœtus are: 1. A uniform pressure on the ovum, produced by the contractions of the muscular fibres, "the internal uterine pressure" (Schatz), by which the ovum is pressed against and dilates the internal os; and 2. The tendency of the uterus, during its contractions, to assume the round form, "the form-restoring power" (Schatz), whereby the transverse diameter is shortened, the fœtus straightened, the breech forced towards the fundus and through the vertebral column, the head pushed into the pelvic inlet. Both these forces exert their full influence only after rupture of the membranes, and through them are produced the various regular movements which the fœtal head makes in order to adapt itself to the diameters of the pelvis and pass through that canal. This adaptation of the longest diameter of the fœtal head to the longest diameter of the pelvic canal, is the main principle of the mechanism of parturition given by Schroeder, into the particulars of which our space will not allow us to enter.

In the chapter on "The Dietetics of Parturition," as regards posture during confinement, the dorsal position is considered suitable while the head is only in the brim and cavity of the pelvis, but irrational in the expulsive stage proper, because in the latter the head "must be forced, opposed to its own gravity, over the ascending inclined plane of the pelvic floor;" the lateral position is then preferred, or, better still, the position with the body bending forwards, such as the exaggerated side and face position (like Sims's). If the abdominal walls are tense (if not, a binder will press the uterus towards the lumbar vertebræ), the head is thus forced by the gravity of the child against the anterior wall of the pelvis, and the perinæum is only slightly distended—a fact worthy of note for the prevention of rupture of the latter, which in the dorsal position in primiparæ is by experience shown to be almost unavoidable, at least in a

slight degree. "In primiparæ delivered in the dorsal position, the frænulum remained intact in 39 per cent., in 37.6 per cent. there were actual lacerations of the perinæum; in the position recommended the frænulum remained intact in 57 per cent., and laceration of the perinæum occurred only in 24.4 per cent. of all the cases."

Chloroform and chloral are recommended in normal labors, and do not interfere with, but rather favor, uterine contractions.

A physiological loss of weight, caused by the loss of meconium and urine, is observed during the first days after birth; later on, a healthy child must gain daily in weight, during the first four months 20 to 25 grammes, from the fifth to the tenth month 15 grammes. According to Odier and Blache, a child ought to weigh at the end of four months twice as much as at the time of birth, and at the end of sixteen months again, twice the last weight.

"The very important question in practice, whether syphilitic pregnant women may undergo treatment with mercury, without danger to themselves or their offspring, must decidedly be answered in the affirmative; for the frequency of premature births and the number of children dying during gestation are considerably lessened by treatment with mercury."

The chapters on "Anomalies of the Gravid Organs of Generation," and on "Diseases of the Ovum," while necessarily short, contain a great deal of valuable information, and a number of the latest histological researches on diseased deciduæ and ova. The 40 pages treating of these subjects contain too much that is of interest and more or less new, to allow of the possibility of our entering into their discussion in these pages.

In the "General Pathology and Therapeutics of Parturition" (which occupies 58 pages) we find ergot spoken of as occupying "the foremost place amongst the medicines to which an influence on uterine action is attributed. . . . Schatz has shown, by means of the tokodynamometer, that after the use of ergot the internal uterine pressure is continuously and greatly increased during the intervals, and that the pains become more frequent but less efficient, until at last they entirely cease." The danger to the child therefrom, owing to the constant interruption of the placental circulation, is evident. (It is well known that considerable skepticism is felt by many eminent obstetricians as to the truth of the active pain-producing effects attributed to ergot.—*Rev.*)

Choral is highly spoken of as promoting rapid delivery in cases where the uterine action is very painful without being efficacious.

Among the craniotomy instruments we find enumerated Braun's curved trephine-perforator and cranioclast, Barnes's craniotomy forceps, the various novel kinds of cephalotribes, etc., with the manner of their application; among the instruments for embryotomy is mentioned Braun's "decollator," or *Schlüsselhaken.* Pages 226 to 281 are devoted to the description of "Anomalies of the Bony Pelvis," such as the generally uniformly contracted pelvis; the flat pelvis; the generally contracted flat pelvis, or the generally unequally contracted pelvis (comprising contracted pelves of rachitic and non-rachitic origin); the spondylolisthetic, the kyphotic, the funnel-shaped contracted, the anchylosed obliquely contracted, the anchylosed transversely contracted, the osteomalacic pelvis, the pelvis narrowed by osseous tumors, and their various sub-varieties, with the influence of the contraction on the position and attitude of the fœtus, on the mechanism, course, consequences, and termination of labor, and the treatment of parturition to be employed in the narrow pelvis. Among the "Lacerations of the Soft Parturient Passages," we find mention made of the lacerations occasionally occurring of the mucous membrane between the clitoris and the urethra; even a very superficial tear in the vascular cavernous tissue at that spot may be followed by great loss of blood. (The nature of these hemorrhages, they not being spoken of in the text-books, is not generally known, and they may therefore be mistaken for uterine flooding, and the proper local treatment by compression and styptics be omitted until a great amount of blood has been lost, as was the case in several cases which came to our knowledge, although not under our own observation.—*Rev.*)

The immediate union, by sutures, of a lacerated perinæum is recommended, and in our opinion there can be no doubt that it is the proper treatment. As regards the etiology of eclampsia, it is stated that nothing definite is yet known, and the theories of Frerichs, Halbertsma, Traube, and Rosenstein are related. The treatment of the convulsions is absolute narcosis by chloroform, chloral, or, best, morphia.

An interesting article, not always found in text-books, is that on "Premature Respiration and Death of the Child during Parturition," which treats of the effects of compression of the fœtal brain, of the umbilical cord, and the premature admission of air to the fœtus in premature respiration, principally as elucidated by the investigations of B. S. Schultze, who, together with Hohl, Stolz, Cajeaux, Kiwisch, Hüter, and Schroeder himself, observed that the disturbance in the interchange of gases in the placenta considerably increases the frequency of the fœtal pulse, and attributes this increase to the paralysis of

the vagus nerve, which paralysis is always preceded by an irritation of the vagus and a decrease in the frequency of the fœtal heart-sounds.

The view that "the origin of puerperal fever is due to the absorption of septic material from the surface of the wound," is the one adopted by Schroeder; this is substantially the theory advanced by Semmelweiss in 1847, with the modification that the poison need not be of cadaveric origin only, but may proceed from any organic substance in process of decomposition. The infecting matter may be derived either from the infected organism itself—auto-infection—or it is introduced from without —external infection. "There is nothing specific in puerperal fever," neither is it really contagious, but only "manually transferable."

"The fever, and especially the pulse, show great variations in cases of general peritonitis. The temperature, which sometimes rises to above 41° C., or even 42° C., is in other instances strikingly low, so that it only rises to 39° C., and very considerable remissions alternate with complete intermissions. Fever may often be entirely absent in a very acute case, and where there is very copious exudation. The state of the pulse is more constant. It is always small, and always more frequent than would be expected from the degree of the temperature. Yet this also is not without exception," etc.

"If the accoucheur takes all these precautions" (the prevention of decomposed organic matter being brought to the puerperal woman; scrupulous cleanliness of sheets, sponges, instruments, hands, and clothes of the physician and nurse), "he will not be forced to give up his obstetric practice for a time, if puerperal fever happens to occur." A nurse who has attended a deceased puerperal woman, being less likely to be careful, should not be admitted to a new case soon after. Against the long continuation of high temperature, the methodical application of cold water, in the shape of the cold, or gradually cooled, bath, and the cold wet sheet (the latter to be repeated in intervals of a few moments until the temperature falls), is strongly recommended. In mild cases the purgative treatment is highly spoken of, and the use of the sulphites for the neutralization of the septic matter, and of digitalis and veratrine (Elliot, Barker, and v. Grünewaldt) for the reduction of the fever, is mentioned. Good food and an abundance of wine should be given, even when the fever is considerable.

The book closes with "Diseases not Due to Infection;" the last article being on "Sudden Death in the Puerperal State," by embolism of the pulmonary artery, and entrance of air into the uterine veins.

Although we have not attempted to give an exhaustive review of this work, we trust that we have succeeded in our endeavor to show its merits and value, and by aiding in its distribution are glad to have been able to pay a deserving tribute to its talented author.

Let us not, however, forget the translator, to whom the non-German-speaking portion of the profession owe the pleasure of perusing this book. He has done his work in a generally very satisfactory manner, and we have not been able to detect any material discrepancies in the language of the translation. The print is good, the few illustrations fair, and the exterior of the book generally worthy of its contents. P. F. M.

CLINICAL NOTES ON THE ELECTRIC CAUTERY IN UTERINE SURGERY. By J. BYRNE, M.D., M.R.C.S.E., Surgeon-in-chief to St. Mary's Hospital for Diseases of Women, Brooklyn, etc. New York: William Wood & Co. 1873, pp. 68.

IN order to supply a want found in all works on Female Diseases, and to enable the gynæcologist as well as the surgeon to learn from a book in a short period what otherwise it would take much time and trouble to acquire, viz., the nature of the various kinds of apparatus used for electric cautery and the minute details of the *modus operandi* in the numerous cases in which such an operation is deemed necessary, the author has enumerated various batteries now in use, such as Bunsen's, Grove's, Middeldorpff's, Stohrer's, Grevet's, commenting on their relative merits, but expressing himself as not completely satisfied with their qualities, they being either too bulky and expensive, or not sufficiently reliable or powerful in proportion to their size. He then describes a new battery, devised and used by him for the last two years, which "consists of twelve carbons and twelve zincs, each 3 by 5 inches, combined and arranged so as to represent four sets or cells of three pairs each." By means of an "*electro-tension disc*," the battery may be made in a moment to represent either two or four cells. This battery heats from 6 to 8 inches of No. 16 wire, or over 12 inches of No. 21. This battery is very neat, compact, and portable, and has been used by Dr. B. in numerous operations with unvaryingly gratifying results. The great principle illustrated by this apparatus is: First. "That much greater thermal power can be obtained from 120 inches of surface, represented by a number of small plates (3 × 5), combined and connected in a certain manner, than can possibly be produced by 378 inches

when elements four times the size are employed, the intensity arrangements being the same in both cases, and each battery consisting of two of these compound open cells, *immersed in one vessel.* Secondly. A battery of two cells also in one fluid, each representing about 70 inches of negative surface in the aggregate, opposed to a like amount of zinc or positive metal, the elements measuring 5 inches by 1¼, and each cell made up of 8 carbons and 8 zincs of the same size, alternately arranged in two rows, will give better thermal results for most surgical purposes than either of the preceding." More efficient still, if necessary, but also more expensive, would be 18 carbons and 18 zincs, each 1¼ inch by 5 inches, divided into three sets or open cells, instead of two, as in the preceding.

A satisfactory explanation of the extraordinary increase of power produced by thus multiplying the number of small plates in a battery is not easy to give; perhaps it is owing to the proportionally greater amount of surface brought in contact with the fluid? The fact itself is incontestable, and a most important advance in electrology.

Dr. Byrne has employed the electric cautery in 72 cases, 18 of which he relates at length, and gives besides many valuable hints as to the details of the various operations, the manœuvres often necessary to slip the wire-loop around the pedicle of a fibroid polypus, the self-retaining speculum used by him during the operation, etc.* The work is illustrated by numerous excellent illustrations of the batteries, loop-instruments, cauterizers, and various operations.

We desire to correct an erroneous statement on page 62, which is reported to have been made at a meeting of the New York Obstetrical Society, viz., that a fatal error in diagnosis in the case of a fibrous polypus springing from the fundus uteri had occurred in the clinic of Professor Scanzoni within the last two years, in which the fundus uteri, being mistaken for the base of the pedicle, was extirpated, and the patient died in consequence. Having repeatedly examined the patient and assisted at the operation, which occurred in March, 1867, and was published in 1869, in Vol. V. of *Scanzoni's Beiträge zur Geburtskunde*, we can positively assert that the diagnosis of chronic inversion of the uterus was absolutely certain when the operation of amputation of the tumor was decided upon. All

* For a full description of this speculum see this Journal for August, 1871. These "Notes on Electric Cautery" were first printed in the New York *Medical Record*, December and January, 1872–3, and reprinted in this Journal and other leading periodicals.

doubts as to the nature of the tumor had been removed by careful, repeated examination per vaginam, rectum, and vesicam, although they had previously existed in the minds of all who saw the case, and two vain attempts at reduction of the inversion had been made. The patient, who was very much debilitated by frequent hemorrhage from the inverted uterus, died on the sixth day of pure exhaustion, accompanied by slight local pelvic peritonitis. We consider this correction proper, in vindication of Scanzoni's reputation as a skilful diagnostician.

P. F. M.

THE HANDBOOK FOR MIDWIVES. By HENRY FLY SMITH, B.A., M.B., Oxon., M.R.C.S. Engl., etc. London: Longmans, Green & Co. Boston, Mass.: James Campbell, 1873, pp. 158.

THIS book contains all the information, perhaps even more than necessary, to a midwife who is entrusted with the whole management of a normal confinement, as is the case in England and the continent of Europe, and who is required to be sufficiently conversant with the signs of the pathological conditions occurring during parturition, to be able to recognize them and call in the timely aid of a physician. In this country, however, where no female able to bear the expense will dispense with the services of an educated physician, even during an ordinary confinement, a book like this seems hardly necessary, for it is too elaborate for the understanding of the majority of the female nurses who have only to carry out the directions of the attending physician, and do not need to be acquainted with the anatomical, physiological, and pathological details of parturition. We do not mean to say, however, that it would not be well if "monthly nurses" *were* acquainted with these details as they are clearly and concisely presented in this book, and trust that in course of time they will be trained somewhat as the midwives are in Europe, with less power and range of functions, however, than there; for, in our opinion, and as far as our experience goes, the institution of midwives there is an evil, and not even a necessary one. A discussion of this point would of course exceed our space. Schroeder, in his "Manual of Midwifery," says: "It is the duty of that attendant to assist the woman by word and deed, and to watch carefully the course of the labor, in order that anything which interferes with its normal course may be removed, and that the actual occurrence of accident or danger may be immediately recognized and proper means at once taken. As a rule, these duties

are performed by trained midwives, but it cannot be denied that they are only very improperly qualified for their task. It is just the prophylactic treatment of the lying-in woman that requires not only a skilled obstetrician, but a physician thoroughly acquainted with all the branches of his science. A midwife is only able to recognize pathological conditions fully developed, and after she has recognized them, is forced to summon a medical man, so that the loss of time is certainly not conducive to the safety of the parturient woman."

In America, it seems to us that Dr. Smith's book will be chiefly of interest to ladies of an inquisitive turn of mind who not unnaturally, and indeed very correctly, desire to become a little better acquainted with the mysteries of child-birth, and with the management of infants. To these we can fitly recommend it; there is a great deal in it which any lady may need, and which every mother should know, and nothing that may do harm. The woodcuts are quite numerous and very good, and the whole book very neatly gotten up. P. F. M.

REPORT OF THE COLUMBIA HOSPITAL FOR WOMEN AND LYING-IN ASYLUM, Washington, D. C. By J. HARRY THOMPSON, A.M., M.D., Surgeon-in-chief. With an Appendix. Washington: Government Printing-Office, 1873, pp. 430.

THIS report, the discussion of which has been unintentionally delayed, comprises a summary of all the principal operations performed by the author in the "Columbia Hospital for Women," from March, 1866, to June, 1872, with short reports on "Diseases of Women," "Diseases of Children," and "Diseases of the Eye and Ear," from the Dispensary connected with the Hospital.

The total number of patients admitted, both out- and in-door, was 11,455; of these 9,457 were cured, and 1,081 relieved.

In addition to a number of operations and cases related in detail, of which the operations for ruptured perinæum, prolapse of the uterus, rectocele and cystocele, and hæmorrhoids, deserve mention, some of the chapters contain elaborate accounts of the history, ætiology, pathology, and treatment of the affection in question. Such are the chapters on carcinoma, the histology, pathology, and prognosis of which are discussed in a manner worthy of a monograph on cancer, on foreign bodies in the female bladder, on diseases of the vagina and cervix, on uterine tumors, and various others. The Dispensary report on "Diseases of Females" consists almost entirely of a long discussion by the author (Dr. F. A. Ashford, Assistant-Surgeon

in charge of section) of the variety of symptoms and conditions comprised under the heads "metritis" and "endometritis," and their treatment; and the larger portion of the report on "Diseases of Children," by Dr. Samuel C. Busey, Physician-in-charge, is occupied by the chapters on "Entero-colitis, cholera-infantum, dysenteria, and dentitio difficilis," and on "The value of certain drugs in the treatment of bronchitis," the latter being the enumeration of a number of expectorants used in that affection, and the discussion of their therapeutical properties. The chapter on "Diseases of the Eye and Ear" gives a list of 196 cases of diseases of the eye and 38 cases of diseases of the ear treated at the Dispensary by D. Webster Prentiss, A.M., M.D., and consists mainly of two articles on "Herpes of the Cornea" and "Trachoma."

While we do not think that this "Report" deserves the scathing criticism given it in a medical journal of this city, still we cannot help expressing our disappointment at finding so little original matter in the book, and our opinion that the cases reported hardly warrant the publication of so voluminous a report. In fact, the bulk of the "Report" is made up of quotations, extracts, and descriptions taken from well-known, especially German, authors, which are certainly valuable in themselves, but can just as well be read in the original. A number of fair woodcuts illustrate the book. P. F. M.

FISTULA, HÆMORRHOIDS, PAINFUL ULCERS, STRICTURE, PROLAPSUS, AND OTHER DISEASES OF THE RECTUM, THEIR DIAGNOSIS AND TREATMENT. By WILLIAM ALLINGHAM, F.R.C.S., England, etc. Second Edition, Revised and Enlarged. Philadelphia: Lindsay & Blakiston, 1873, pp. 265.

THIS little volume treats of the various affections of the rectum mentioned in the title, only the last 50 pages being devoted to the discussion of a few other more or less common rectal diseases, such as pruritus ani, impaction of fæces, cancer of the rectum, rodent ulcer, villous tumor, neuralgia recti, proctitis, removal of coccyx, gonorrhœa of rectum, and vicarious menstruation from the rectum. The material is taken principally from 4,000 cases of rectal diseases met with in St. Mark's Hospital, in addition to the extensive private practice of the author. The book is written in an easy, pleasant manner. Short accounts of cases are frequently intermingled, and altogether it accomplishes very satisfactorily, if concisely, what the author in his preface claims for his object, viz., to give the non-specialist particularly "a clear and applicable knowledge of a very preva-

lent class of disease." The opinions stated and the advice given are those of a man of ample personal experience in the branch he treats of (as is evident by the usually decided manner of expression); and this fact, besides its conciseness, enhances the general merits of the work. P. F. M.

THE SCIENCE AND ART OF SURGERY. Being a Treatise on Surgical Injuries, Diseases, and Operations. By JOHN ERIC ERICHSEN, Senior Surgeon to University College Hospital, etc. A new edition, enlarged and carefully revised by the Author. With upwards of 700 Engravings on Wood. 2 volumes, pp. 1699. Philadelphia: Henry C. Lea, 1873.

IT is hardly necessary to say more about this well-known and deservedly celebrated work than to mention that the present edition contains a number of improvements and additions, both in the text and in the list of illustrations, and being fully on a level with the latest advances in surgical science, completely sustains the high reputation of the five former editions.

LACERATIONS OF THE FEMALE PERINÆUM AND VESICO-VAGINAL FISTULA. By D. HAYES AGNEW, M.D., Phil.

THIS octavo volume is made up of two monographs. One is on the Laceration of the Female Perinæum, and first appeared in the Pennsylvania Hospital Reports. The other is on Vesico-vaginal Fistula, and was published in the *Med. and Surgical Reporter*. They are here arranged in a handsomely printed and illustrated and well-bound volume of 140 pages. Dr. A. has carefully studied and noted the literature of the former accident, and the various operations resorted to for its relief, and with his quite large experience has given us many valuable suggestions, and made the operation seem very simple, as it really is. His report of cases includes those suffering from all degrees of the accident. He simplifies Dr. I. Baker Brown's operation, but fails, we think, to make his own operation as simple as the one practised by Drs. Thomas and Emmett, of the Woman's Hospital, and described by the latter in a paper read before the State Med. Society in 1873. Dr. A. arrives at the following conclusions in his first paper, viz.:

"(1) That laceration of the perinæum, and the recto-vaginal septum, can be satisfactorily cured at a single operation.

"(2) That by the peculiar method of inserting the first suture

there is no necessity of a series of stitches to close the septum, independent of those used for the closure of the perinæum.

"(3) That the interrupted can be used for the quill suture.

"(4) That division of sphincter is not necessary to cure.

"(5) That the superficial sutures may be dispensed with."

Under the head of Vesico-vaginal Fistula the author refers to the modern literature of the subject, and gives a careful résumé of the history, causes, diagnosis, and treatment. He describes the operations of Dr. Sims, Dr. McGuire, and his own. His directions are simple and plain; the necessary instruments are well described and illustrated. A large number of cases are minutely and carefully reported.

These two monographs well merit this more durable and convenient form in which they now appear.

ERRATUM.

IN the foot-note at the bottom of page 459 of this volume, the second line should read, "fluid of *uterine* cysts invariably coagulates," and not *ovarian*, as printed.—[EDITOR.]


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